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AGRICULTURAL ECONOMICS AND SOCIOLOGY

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INTERNATIONAL ORGANISATION OF THE TEA MARKET

SUMMARY: World tea production and trade up to the year 1929 — Agreement of 1930 concerning the restriction of tea production, and its effects. - Agreement of 1933 concerning the restriction of the exports and the production of tea - Legislation of British India concerning the regulation of the export and the production of tea. Measures adopted by the International Tea Committee and the effect of the Agreement of 1933 during the first three years of its application.

World tea production and trade up to the year 1929.

The world production of tea is nearly 2,000,000,000 lbs. per annum (1). The area under tea cultivation is approximately 4,000,000 acres. More than 4,000,000 workers are employed in the growing, harvesting, and handling of the product. Although precise figures are not available as to the proportion of the world production to be attributed to China, it must be little short of half. During the period 1928 to 1932 China accounted on the average for 48.9 per cent. of the world production, India for 22.3, per cent., Ceylon 13.4 per cent., Netherlands Indies 9.2 per cent., Japan 4.7 per cent., Formosa 1.2 per cent., other countries 0.3 per cent. Nearly one half of the total quantity grown is consumed in the producing countries, especially in China; the remainder is placed on the world market.

The international trade in tea had been during 1900, the year taken as starting point for this review of the subject, 605,801,000 lb.; during the four years which followed the yearly average was 624,842,000 lb. In the course of the years 1905-1908 a progressive increase was noted which continued during the subsequent period: the annual average from 1909 to 1913 was 769,328,000 lb. During the war the average was somewhat higher, reaching 857,972,000 lb. during the period 1914-1918. In the years following the war a setback was to be observed in world trade, due largely to the disorganisation of the markets, the lowered purchasing power, and the accumulation of stocks. The average during the period 1920-1924 was 723,249,000 lb. After 1924 a new tendency to increase appeared which reached its maximum in 1929.

The following is an account of the situation in that year (1929) in respect of exports on the one hand, and of the absorption of supplies on the other.

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(1) The data contained in this article are mainly drawn from the following sources: Reports of the International Tea Committee, UKERS, All about Tea. New York 1935; HOUILLIER, L'Organisation Internationale d'Agriculture. Paris 1935; *International Year-book of Agricultural Statistics*, International Institute of Agriculture, Rome; *Tea and Coffee*, Trade Journal, New York; *The Economist*, Commercial History of 1936. 13 February 1937.

The exports were 967,000,000 lb; in this figure are included 382,900,000 lb. from India, 251,600,000 lb. from Ceylon, and 159,700,000 lb from the Netherlands Indies. China comes next with 126,400,000 lb., then Japan with 23,700,000 lb., Formosa with 18,300,000, French Indo-China with 2,200,000 and Africa (taking the extra-African exports) with 2,200,000 lb. The world absorption of tea during 1929 was 912,700,000 lb distributed as follows among the countries of most importance in this respect: Great Britain 425,000,000, lb. Netherlands 23,900,000 lb, Russia 63,000,000 lb., Irish Free State 23,600,000 lb., Germany 12,700,000 lb; United States of America, 88,200,000 lb, Canada 38,000,000 lb, Iran 16,200,000 lb, Malaysia 10,200,000 lb., French Morocco 16,400,000 lb., Egypt 12,800,000 lb, South Africa 11,400,000 lb., Australia 48,900,000 lb., New Zealand 12,000,000 lb. By the phrase absorption is here understood the deliveries from bonded warehouses in Great Britain and Northern Ireland and the net imports in the other countries. In the above figure concerning the world absorption of tea are included 26,100,000 lb imported by the producing countries.

During the years 1928-1929 large stocks of tea had been accumulated in the London market. At the end of 1929 the total of the stocks in the warehouses of the London Tea Brokers' Association, which handles 90 per cent. of the imports into the United Kingdom, was 260,427,000 lb, whereas at the end of 1927 the total had been 213,025,000 lb and at the end of 1928 220,523,000 lb. As the increase in consumption was not sufficient to absorb the growing stocks, the price decline which had appeared in 1928 became strongly accentuated in 1929.

Agreement of 1930 concerning the restriction of tea production, and its effects.

In 1920-21 the planters in India took steps on their own account to reduce production in consequence of the difficulties in marketing due especially to the results of the war. In 1929 in view of still more serious difficulties, the British and Netherlands planters resolved, on the invitation of the Indian Tea Association, to restrict production by joint agreement.

The agreement signed at the beginning of 1930 between the planters of India, Ceylon, and the Netherlands Indies made provision for a voluntary decrease in production which was fixed at 57,600,000 lb for 1930, thus distributed: 36,500,000 lb. decrease for India, 11,500,000 lb. for Ceylon, and 9,500,000 lb. for the Netherlands Indies.

The result of this agreement, in conjunction with adverse climatic conditions, was a reduction in the output of tea by 48,000,000 lb in India, and by 8,000,000 lb. in Ceylon. In the Netherlands Indies the reduction was only between 1,000,000 to 2,000,000 lb. This lower figure in the Netherlands Indies was due to the increase in the production by native growers stimulated by the restriction carried out by the European growers, the genuine effort made by the latter being to a large extent neutralised by the increased native production.

The total registered gross exports which in 1929 amounted to 967,000,000 lb., as is stated above, fell in 1930 to 895,100,000 lb. The absorption of tea in the different importing countries decreased, however, from 912,700,000 lb. in 1929 to 906,000,000 lb. in 1930.

The stocks in bond in Great Britain rose from about 275,000,000 lb. in 1929 to 290,000,000 lb. at the end of 1930. The decrease in the stocks of Indian and Ceylon teas was balanced by the increased imports coming from Java and Sumatra. Prices fell. " Good Pekoe " tea, which in 1929 had been quoted in London at an average of 1s. 1*d* per lb., fell to an average of 11 ½*d*. in 1929 and to 9 ¼*d*. in 1930.

The agreement was not renewed in 1931. In the course of that year the total figure for exports from the producing countries was 910,700,000 lb., while the absorption by the importing countries remained unchanged at 906,700,000 lb. Stocks showed a slight decrease standing at 270,000,000 lb. in the bonded warehouses of Great Britain Prices however weakened very markedly. " Good Pekoe " declined on the London market to an average of 6 ¼ *d*. per lb.

Efforts were made in the course of 1932 to reintroduce restrictions, but without result It was only at the end of that year that negotiations undertaken by the representatives of the Netherlands Indies growers with the Indian Tea Association and the Ceylon Association in London led to the conclusion of an agreement based on a plan of restriction of exports rather than restriction of production as in 1930.

Agreement of 1933 concerning the restriction of the exports and the production of tea.

This agreement, which received the support of 90 per cent. of the growers of the countries concerned, was signed on 9 February 1933 by the Indian Tea Association (London), the South Indian Association in London, the Ceylon Association in London the Vereeniging voor de Thee-Cultur in Nederlandsch Indië (Amsterdam) and the Nederlandsch Indische Vereeniging voor de Thee-Cultuur (Batavia). The form of the agreement was as follows:

(*a*) Exports of tea of all qualities from the producing countries (India including Burma and all the independent States), Ceylon, Sumatra, Java and other islands included in the Netherlands Indies, shall be regulated in order to restore equilibrium between supply and demand:

(*b*) The Governments of the countries in question are to undertake to prohibit exports of tea in excess of quotas to be indicated later:

(*c*) The standard upon which regulation is based shall be fixed on the maximum exports of tea from each producing country reached in any of the three years 1929, 1930 or 1931. The standard fixed for India was 382,594,779 lb., for Ceylon 251,522,617 lb., and for the Netherlands Indies 173,597,000 lb.:

(*d*) For the first year of regulation (from 1 April 1933 to 31 March 1934) the degree of regulation shall be 85 per cent. of the standard export. A Committee shall be set up representing the tea growers concerned which

Committee shall, on or before 31 December of each year, fix the quota for the following year taking into consideration stocks and prices.

(*e*) The agreement shall be for a period of five years;

(*f*) Existing tea areas are not to be extended during the period of the validity of the agreement except in certain cases in which the existence of a tea estate would otherwise be imperilled. No further area may be sold or leased for the cultivation of tea and no planting of tea may take place on land now carrying other products In no case may such extensions and new plantings exceed one half per cent of the existing total area of tea plantations of each territory The respective Governments are to make binding regulations to the above effects.

The entry into force of this agreement was made subject not only to the approval of the Government of each of the producing countries which were signatories of the agreement and to the passing and enforcing of such measures as are necessary, but also to the constitution of a Committee or other organisation representative of the collective interests of tea growers and to the determination of the powers, duties, and functions of this body

At a meeting of the representatives of the tea associations held in London on 30 March 1933, recommendations were unanimously adopted which form an important supplement to the agreement in question

In the first place it was deceded that the agreement should come into force on 1 April 1933 From that date all tea exports had to be subject to export licence, or if the necessary legislation should not at the time have been passed, the exports had to be considered as part of the quotas which the producing countries were entitled to export.

It was further agreed that as far as possible the production of the three signatory countries should be so adjusted that it should not in any year exceed the local consumption plus the quantity which the country in question is entitled to export

The export quotas for the following year, the determination of which was, in accordance with the rules laid down in the agreement entrusted to the Committee (which took the name of the International Tea Committee), are to be fixed by a date not later than 30 November of each year It was laid down that, in determining these quotas, account should be taken of the fact that the signatory parties did not aim through the agreement at an excessive rise in prices Provision is also made for the event of want of unanimity in respect of the fixing of quotas: in these circumstances recourse is to be had to arbitration according to the rules laid down in the memorandum

Detailed rules have been established with reference to the export licences which may be either ordinary or special An ordinary licence shall cover tea reaching any port in the producing country and intended for sale or shipment, such licence holds good till the end of the year of regulation for which it has been issued and not afterwards, except in the case which will be specified below. Special licences shall cover tea shipments which are the subject of an ordinary licence but not exported by the end of the year of regulation for which such ordinary licence is available. Special permits cannot be issued later that the 14th day after the end of the year of regulation and only in exchange for an ordinary licence; they remain good until the 30 June following the end of the year of regulation. In this connection it has been established that the quantities of tea exported by each country shall include both the quantities covered by ordinary licences and those covered by special licences.

The Memorandum anticipates the case that the quantity of tea exported during the year of regulation should be less than the quota allotted to the signatory country: the deficiency may not be added to nor affect the country's quota for the following year, provided always that the Committee should be given power at the request of the country concerned to determine whether, and if so, the extent to which, force majeure (other than weather or climatic conditions) prevented the export of the allotted quota, and to determine, the amount that may consequently be added to the export quota of the country concerned for the following year.

An important provision contained in the Memorandum is that referring to the prohibition of the export of tea seed.

Rules are established in the Memorandum on the formation and the working of the International Tea Committee. The office of this Committee is in London and the Committee consists of the representatives of the producing countries which are parties to the agreement, these members are appointed by their own countries. The members representing each country are to designate one of their number who will have the right to vote and another to replace him in case of absence The number of votes to which each country is entitled was fixed as follows. India 38, Ceylon 25, Netherlands Indies 17 The Committee may pass resolutions with the provision that they may be modified or repealed only by a unanimous vote on the Committee. A unanimous vote is necessary also in the event of another country desiring to be admitted to the tea export regulation scheme In regard to the unanimity required for the fixing of quotas, reference may be made to the foregoing remarks on the subject

The following is a statement of the powers, duties, and functions of this Committee. (*a*) fixing, after the first year of the agreement, of the quota for the year; (*b*) assembling of statistics and of information relating to areas under tea, production, exports, consumption, and stocks in the producing countries as well as in other countries; (*c*) the study of the increase or falling off of consumption and the reasons therefore, (*d*) the study of ways and means of developing the world consumption of tea, (*e*) recommendation of measures for the improvement, development, and control of production and consumption of tea; (*f*) the publication at regular intervals of accurate statistics regarding the world tea situation, the suggestion of steps to be taken for the adjustment of production to the exports and the demand, and for improving methods of sale and marketing; (*g*) consideration and discussion with producers in tea-growing countries not parties to the agreement, of measures of mutual interest with a view to the conclusion of an agreement; (*h*) the election of a Chairman, to be chosen from among the members of the Committee, as well as the appointment of a secretary, statisticians, accountants, and additional staff required to carry on the work of the Committee.

Immediately after the signing of the agreement the Tea Associations invited the Governments of the three countries concerned to take the necessary legislative measures to give full effect to the agreement. This was done with varying degrees of rapidity and completeness by the three countries.

Legislation of British India concerning the regulation of the export and the production of tea.

It may be of interest to give here some information about the legislative regulations adopted in India (1). The measures taken in that country are of special interest because they have not undergone modifications, as have the measures taken in the other signatory countries, during the first three years of regulation (except only in regard to the overland export of tea to Iran).

It is unnecessary to dwell on the provisions relating to the formation, history, and dissolution of the Indian Tea Licensing Committee, the constitution of which was entrusted to the Governor General in Council.

Governmental control, according to the Act of 1933, does not apply to tea exported by parcel post nor to tea shipped as stores on board any vessel in such quantity as the Customs Collector judges reasonable having regard to the numbers of the crew and passengers and the length of the voyage to be made. Apart from special cases and exceptions all the tea sent by sea, and all tea send by sea or land into any of the French or Portuguese Settlements bounded by India, must be accompanied by a permit issued by the Indian Tea Licensing Committee.

The Indian overseas Export Allotment for the fiscal year 1933-34, including tea exported overseas during that year before the entry into force of this Act was fixed at 320,570,560 lb. avoirdupois. On the other hand the overseas Export Allotment for India for the subsequent financial years shall be declared by the Governor General in Council by notification in the Gazette of India after consulting the Committee and paying due regard to all interests concerned.

The export allocation to each tea estate during each financial year, *i. e.*, the total quantity which the owner of the plantation may export overseas during that year shall be determined by the Committee in the manner prescribed. The total of all the allocations for a single fiscal year shall not exceed the Indian overseas Export Allotment for that year

The owner of a tea estate to which a quota has been allotted for any financial year shall have the right to obtain at any time during that year export licences to cover the export overseas of tea up to the amount of the unexhausted balance of the quota, *i. e.*, up to the amount of the quota less the quantity for which export licences have already been issued against it: Provided that the unexhausted balance of any quota at any time during financial year 1933-34 after the entry into force of this Act shall be the amount of the quota less: (*a*) the quantity for which export licences have already been issued against the quota under of this Act, and (*b*) the quantity for which export licences were issued against the quota by the Licensing Committee constituted under the Tea Licensing Resolution, and (*c*) the quantity of the tea produced on the estate and exported overseas after 31 March 1933 and before 26 May 1933.

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(1) The Indian Tea Control Act 1933, No XXIV. *The Gazette of India*, Part IV, 23 September 1933.

The right of the owner of a tea plantation in virtue of these provisions may be transferred wholly or partially and on condition that the Committee is satisfied with the evidence of the transfer. The person to whom the right in question has been transferred has the right to obtain export licences up to the quantity covered by the transfer or up to the quantity of the unexhausted balance of the quota, whichever may be the less.

Application should be made, before 21 March of the fiscal year to which the quota refers, for the export licences issued by the Committee and these licences hold good up to the end of the fiscal year. If however the tea covered by a licence has not been exported overseas before the end of the fiscal year for which the licence was issued, the person to whom the licence was granted may, before the expiration of the first fortnight of the succeeding financial year, forward the licence to the Committee together with an application for a special export licence covering the same quantity of tea. Such a licence holds good up to 30 June of the year in which it was issued. The quantity of tea covered by a special export licence must be included in the export quota of the year in which the original licence was issued.

No consignment of tea may be shipped, or water-borne to be shipped for export overseas until the owner has delivered to the Customs Collector a valid export licence or a special licence covering the quantity to be shipped. The same holds good for consignments of tea shipped, or waterborne to be shipped, for export to any of the French or Portuguese Settlements bounded by India.

The Committee may serve by post a notice on the owner of any tea estate requiring him to supply, within a specified period, such returns relating to the output, sale, and export, of the tea grown on the estate as the Committee may deem necessary to the discharge of its duties. If this return be not supplied, the Committee may refuse to allot a quota to this estate or if this has already been done, it may cancel the unexhausted balance of the quota and refuse to issue further export licences.

The Committee may charge and collect the following fees: (*a*) a licence fee for each export licence or special licence issued; this fee may be fixed by the Governor General in Council at a rate not exceeding the sum of eight annas per 1000 lb. of tea covered by the licence; (*b*) copying fees for the certified copies of accounts of quotas at the rate of one rupee a copy. The Committee is to apply these fees to meet the expenses incurred in pursuance of the purposes of this Act and also, with the previous sanction of the Governor General in Council, for the payment of a contribution to the maintenance of any international tea committee established in furtherance of these purposes in tea producing countries in general.

The Governor General in Council may make rules: (*a*) prescribing the manner in which the export quotas of tea estates shall be determined; (*b*) regulating the grant of permits for the export of tea consigned to the French and Portuguese Settlements; (*c*) prescribing the form of export licences and of special export licences; (*d*) generally, to carry out the purposes of the Act.

No quota fixed and no order granting or refusing to grant any licence or permit issued shall be called in question in any Court.

The Act also contains interesting provisions on the control of the extension of tea planting

No one may plant tea on land which was not planted with tea on 31 March 1933, except with a written permission granted by the Tea Licensing Committee or in the name of the Committee. Any land which had been planted with tea at any time during the period of two years before 31 March 1933, but which in accordance with tea-growing practice was lying fallow on that date, is considered as having been planted with tea on 31 March 1933. It was established that the total area of land in India in respect of which these permissions might be granted was not to exceed 4,000 acres, from which there might be deducted the increase in the area planted with tea which might have occurred during the period between 31 March 1933 and the entry into force of the Act

The determination of the total area of lands in a single province for which these permissions might be granted was to be made by the Governor General in Council and, subject to the limit already cited for India as a whole, should be as near as possible one half of one per cent of the total area in the province under tea cultivation on 31 March 1933.

The time within which applications might be made for permission to plant tea for the first time on any land was fixed at one month from the entry into force of the Act.

Measures adopted by the International Tea Committee and the effect of the Agreement of 1933 during the first three years of application (1).

At the end of March 1934, *i. e.*, at the end of the first year during which the agreement of 1933 was in force, the three regulating countries had exported 650,300,000 lb. thus distributed: India, 317,100,000 lb. (by sea), Ceylon lb, 197,000,000, the Netherlands Indies 136,100,000 lb; these countries were entitled to export during this year of regulation 682,000,000 lb. thus distributed India, 320,600,000 (by sea), Ceylon 213,800,000, Netherlands Indies 147,600,000 lb. Indian overland exports were not subject to the export licence system except for exports made over the land frontiers of India and directed to the French and Portuguese possessions, such exports being classed with exports by sea. However, while during the year 1933 the export quota overland had been fixed at 4,600,000 lb, the actual overland exports exceeded this limit by 2,700,000 lb.

In the course of the previous year (1 April 1932 to 31 March 1933) these countries had exported 825,200,000 thus distributed India 379,800,000 lb. (by sea), Ceylon 258,800,000 lb. and Netherlands Indies 186,600,000 lb.

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(1) See tables I and II.

The other exporting countries not bound by the agreement of 1933, which during the period 1 April 1932 to 31 March 1933 had exported in all 140,000,000 lb. of tea, exported in the course of the year 1 April 1933 to 31 March 1934 nearly 9,000,000 more than this; the increase came mainly from Japan and Formosa.

The world absorption of tea, which in the year 1932-33 had been 849,300,000 lb., increased during the year 1933-34 to 866,400,000 lb.

The stocks in bonded warehouses in Great Britain, which on 31 March 1933 mounted to 295,800,000 lb., had fallen by 31 December 1933 to 288,200,000 lb. and on 31 March 1934 stood at 273,200,000 lb.

In consequence of the improvement in the stuation the Committee unanimously agreed to fix the quota for the financial year 1933-35 at 87 ½ per cent. of the standard export instead of the 85 per cent. which had been fixed for the first year of regulation. The Governments of the countries concerned were in agreement with this decision.

The exportation of the regulating countries amounted in the second year of regulation to 688,800,000 lb. thus distributed: India, 323,400,000 lb (by sea), Ceylon 220,000,000 lb., Netherlands Indies 145,200,000 lb; these countries were entitled to export 702,000,000 lb. thus distributed: India 330,000,000 lb. (by sea), Ceylon 220,100,000 lb., Netherlands Indies 151,900,000. The overland export of tea from India during the year 1934-35 exceeded by 11,877,472 lb. the authorised quota which had been fixed for that season at 4,771,282 lb. In consequence the International Tea Committee through the medium of the Tea Licensing Committee urged on the Government of India the suggestion, already made in 1934, that a system of control also of exports overland should be introduced. The stress laid on this matter subsequently had effect.

The exportation from non-regulating countries during 1934-35 was 164,700,000 lb.: the very large increase was due to the exports from China and Formosa.

There was a considerable decrease in world absorption from 866,400,000 lb. at the end of March 1934 to 844,300,000 lb at the end of March 1935.

Stocks in the bonded warehouses of Great Britain attained by 31 December 1934 the figure of 302,000,000 lb., falling again by 31 March 1935 to 288,700,000 lb.

In consequence of these results the Committee decided to recommend the Governments of the regulating countries to fix for 1935-36 an export quota of 82 ½ per cent. of the standard export. Actually, whereas in November 1933 the Committee had been of the opinion that the exportable quantity for the second year of regulation might be increased without disadvantage, at its meeting of October 1934 the Committee was obliged to conclude that its previous decision had been somewhat too optimistic, a conclusion borne out by the volume of stocks found to be existing at the end of 1934. None the less the Committee justified this decision on the ground that, judging from the attitude of the trade at the time, to have continued the quota at 85 per cent., fixed for the first year of regulation, into the second year would have been to invite reactions much more serious than those produced by the increase to 87 ½ per cent., actually recommended. The trade had in fact seemed to be convinced that 87 ½ per cent. would not provide a supply of tea sufficient for consumption requirements; and it would appear that the increase in 1934-35 in imports from China and Formosa was attributable to this convinction.

As already stated, the Committee had been charged by the Memorandum of Recommendations, *inter alia*, to endeavour to find ways and means for increasing the world consumption of tea. The Committee had recognised that the regulation of exports would not in itself be sufficient to solve the difficulties relating to the trade in tea; it was essential to take steps to increase the sale of tea on the world market. From approximate calculations it is anticipated that in 1938 the potential supplies from the areas now under cultivation will be some 315,000,000 lb. more than the 1934 absorption. In consequence, the Committee recommended the formation of a joint Commission of enquiry, consisting of representatives of the three countries concerned, which was to proceed to the United States with the object of studying in the first place the prospects of increasing by propaganda consumption of tea in that country. This was done. While this enquiry was in progress, the Committee on 10 October 1934 unanimously adopted a memorandum which was afterwards approved by the Producers' Associations of the three countries concerned.

As a beginning the Committee recognised that the propaganda at present carried out by the Indian Tea Cess Committee, the Ceylon Tea Propaganda Board and the Amsterdam Tea Association, in India, the United Kingdom, the United States, Canada, South Africa, and Europe was not adequate to meet either the urgent need for opening new markets for large quantities of tea or the necessity for checking a decline in consumption in the existing markets. In consequence it was considered imperative that the existing propaganda should be expanded; that it should be devoted exclusively to the purpose of extending the consumption of the teas grown in the regulating countries; that efforts should be made only on markets where the greatest increase in the consumption of tea, is likely to be obtained; and, finally, that propaganda efforts should be as closely co-ordinated as possible in order to ensure the best utilisation of the resources available and to ensure that all the experience and information gained by each of the organisations concerned in the propaganda be placed at the disposal of the others with a view to increasing the economy and efficiency of the work as a whole.

The results of the third year of regulation (1935-36) have been favourable.

The exports of the regulating countries were 682,400,000 lb. in all, thus distributed: India 320,000,000 lb., Ceylon 215,900,000 lb., Netherlands Indies 146,500,000 lb.; these countries were entitled to export 707,500,000 lb. thus distributed: India 322,100,000 lb., Ceylon 224,100,000 lb., Netherlands Indies 161,300,000 lb. The figures referring to India this time cover also the overland exports to Iran, whereas for the previous years the overland export were given separately.

The Act passed in India to give effect to the regulations contained in the International Agreement of 1933 had been confined, as we have said, to the overseas exports, although in the International Tea Agreement the standard export relating to India consisted of two parts: exports by sea and exports overland. The Government of India however at the time of the passing of the Indian Tea Control Act judged that it was unnecessary to control exports over the land frontiers and that these exports should be treated as Indian domestic consumption. In consequence the licensing system had not been applied in the case of these exports.

In view, however, of the very large quantities of tea exported to Iran in excess of normal exports, the Government of India decided that, beginning from 1 September 1935, the total licences issued in India for 1935-36 and following years should cover all tea exported from India by sea, and those to Iran by land. The quota assigned to India was modified, by deducting 60 per cent. of the excess volume from the export licences issued during the years 1936-37 and 1937-38 in equal annual amounts.

TABLE I. — *Exports of tea.*

(Quantities in million lbs)

	Years ending 31st March			
	1933	1934	1935	1936
REGULATING COUNTRIES				
India (by sea)	379 8	317 1	323 4	(a) 314 2
India (by land to Iran)	1 3	5 5	14 5	5 8
Ceylon	258 8	197 0	220 2	215 9
Netherlands East Indies	180 6	136 2	145 2	146 5
Total Regulating Countries	826 5	655 8	703 3	682 4
NON-REGULATING COUNTRIES				
China	91 4	91 5	102 1	91 0
Japan	27.8	32 9	28 9	37 3
Formosa (*b*)	14 9	16 6	22 2	20 4
French Indo-China	1 5	1 6	2 8	2 5
Nyasaland	3 0	3 7	5 4	6 7
Kenya	1 1	2 0	2 9	6 0
Other Africa	3	4	4	5
Total Non-Regulating Countries	140 0	148 7	164 7	164 4
Grand Total	966 5	804 5	868 0	846 8

(*a*) Subject to adjustment when final figures are available.

(*b*) Excludes the shipments of tea from Formosa for consumption in Japan which are looked upon as domestic trade.

TABLE II. — *Absorption of tea.*

(Quantities in million lbs.).

	Years ending 31st March			
	1933	1934	1935	1936
I — EUROPE				
United Kingdom (*a*)	427.2	432.4	436.3	451.0
Netherlands	27.1	21.9	23.7	24.1
U. S. S. R.	31.8	51.8	48.0	50.8
Irish Free State	22.6	24.8	22.1	22.3
Germany	10.0	10.4	10.4	10.3
Poland and Danzig	3.8	3.9	3.6	3.0
Channel Islands and Gibraltar (*b*)	2.6	2.9	2.5	* 2.5
France	3.3	4.3	1.9	2.8
Czechoslovakia	1.5	8	1.0	1.2
Switzerland	2.3	1.5	1.5	1.9
Denmark	1.4	1.4	1.2	1.3
Austria	1.0	7	8	8
Romania	1.1	1.0	1.1	* 1.1
Yugoslavia	5	4	4	* 4
Sweden	8	9	9	1.1
Belgium and Luxembourg	6	5	5	6
Italy	3	3	3	3
Norway	4	4	4	4
Portugal	6	5	4	4
Greece	5	4	3	5
Hungary	5	4	5	5
Malta	5	3	.4	* 4
Spain	3	3	3	3
Finland	2	2	3	2
Estonia	1	1	1	1
Latvia	.1	.1	1	1
Lithuania	1	1	1	1
Bulgaria	1	0	1	1
Other Countries	* 5	* 5	* 5	* 5
Total . . .	541.8	563.2	559.7	579.7
II — NORTH AND CENTRAL AMERICA				
United States (*c*)	91.5	92.7	78.0	82.2
Canada	38.0	35.8	30.0	36.7
Newfoundland	1.5	1.0	1.5	* 1.5
Alaska	1	1	.1	* 1
Mexico	1	1	* 1	* 1
Other Countries	* 1.1	1.1	* 1.2	* 1.2
Total . . .	132.3	130.8	110.9	121.8

(*) Estimated.

(*a*) Quantities entered for home consumption.

(*b*) Exports from the U. K. and producing countries

(*c*) Excluding Alaska and Hawaii.

TABLE II. — *Absorption of tea* (continued).

(Quantities in million lbs.).

	Years ending 31st March			
	1933	1934	1935	1936
III — SOUTH AMERICA				
Chile	3.5	1.6	3·5	4.2
Argentina	4.1	4.2	3·9	4.0
Peru	1.0	1.1	1.1	* 1.2
Brazil	·3	·3	4	* 4
Bolivia	·3	·3	* 3	* 3
Uruguay	·3	·4	3	* 4
Trinidad and Tobago	2	2	· 2	* 2
Other Countries	4	·4	4	* 5
Total	10.1	8.5	10.1	11.2
IV — ASIA				
Iran	10.0	12.0	18.0	11.5
Malaya	3.8	3.1	4·9	4.0
Iraq	4.1	4.5	4.9	5.5
Siam	1.6	1.6	1.9	* 2.0
Turkey	1.7	2.4	1.2	* 1.5
Hong Kong	* 2.0	* 2.0	* 2.0	* 2.0
Arabia (*a*)	1.8	·7	1.3	1.5
Philippine Islands	·7	6	5	* ·5
Syria and Lebanon	3	3	4	* ·4
Sarawak	.1	.2	.2	* 2
Palestine	3	·4	6	* 7
Aden	2	.1	* .2	* 2
British North Borneo	1	.1	* .1	* 1
Portuguese India	1	.1	* 1	* 1
Manchukuo	1.3	3·9	4.2	4.8
Other Countries	* 1.1	* 1.0	* .9	* .9
Total	29.2	33·0	41.4	35·9

(*) Estimated.

(*a*) Exports from Aden and producing countries.

** *Ec. 7 Ingl.*

TABLE II. — *Absorption of tea* (continued).

(Quantities in million lbs.).

	Years ending 31st March			
	1933	1934	1935	1936
V. — AFRICA.				
Morocco, French	17.5	18.6	16.5	16.2
Morocco, Spanish	1.1	1.0	1.1	* 1.1
Morocco, Tangier Zone	.3	.3	.2	* .3
Egypt	13.8	12.7	13.1	13.5
Union of South Africa (*a*)	11.9	11.6	11.0	14.2
Anglo-Egyptian Sudan	4.1	3.2	4.7	5.2
Tunis	2.7	2.1	2.8	3.3
Algeria	3.1	4.5	2.5	2.5
Tripolitania	2.6	2.9	* 2.0	* 2.0
Cyrenaica	1.0	.9	* 1.0	* 1.0
Southern Rhodesia	.5	.5	.4	* .4
Senegal	.3	.6	* .4	* .4
French Somali Coast	.1	.0	* .1	* .1
Mauritius	.5	.3	.3	* .4
Tanganyika (*a*)	.3	.3	.3	* .2
Somaliland, Italian	.6	.3	* .3	* .3
Zanzibar	.4	.2	.3	* .3
Eritrea	.2	.1	* .2	* .2
South-West Africa	.2	.2	.2	.2
Nigeria	.1	.1	.1	* .2
Somaliland, British	.2	.2	* .2	* .2
Other Countries	* .9	* .8	* .8	* .9
Total . . .	62.4	61.4	60.0	64.0
VI. — OCEANIA				
Australia	47.7	46.9	44.0	44.7
New Zealand	10.6	12.0	9.3	10.6
Hawaii	.3	.3	* .3	* .3
Fiji Islands	.2	.2	.2	* .2
New Caledonia	.1	.1	* .1	* .1
Other Countries	* .1	* .2	* .2	* .2
Total . . .	59.0	59.7	54.1	56.1

(*) Estimated

(*a*) Net imports of foreign tea.

TABLE II. — *Absorption of tea* (continued).
(Quantities in million lbs.).

	Years ending 31st March			
	1933	1934	1935 *	1936
VII — IMPORTS INTO PRODUCING COUNTRIES.				
(*excluding Africa*)				
India (by sea) (*a*)	5 8	4 7	3 1	5 1
Ceylon	0	0	.0	0
Netherlands East Indies	3 7	2 1	1 9	1 1
China	2 6	7	6	6
Japan (*b*)	8	8	8	8
Formosa	0	0	1	1
French Indo-China	1 6	1 5	1 6	1 7
Total . . .	14 5	9 8	8 1	9 4

(*) Estimated.
(*a*) Net imports by sea of foreign tea
(*b*) Excluding imports from Formosa.

On the other hand, the exports overland to Afghanistan, Thibet, Nepal, Sikkim and Bhutan, which showed no noteworthy changes during the previous years and which are regarded as forming part of the Indian domestic consumption, continue to be exempt from the requirements of the system of export licences.

As regards exports of non-regulating countries, the total did not vary significantly in the course of the fiscal year 1935-36, as 164,400,000 lb., were registered as compared with 164,700,000 lb. exported during the year 1934-35. Exports from China and Formosa were smaller while those from Japan and Kenya were larger.

The world absorption of tea has shown a remarkable advance; it has passed from 844,300,000 lb. during the year 1934-35 to 878,100,000 during the year 1935-36.

Bonded stocks in Great Britain were registered on 31 March 1936 as 249,300,000 lb. as compared with 288,700,000 lb. on 31 March 1935. These figures are subject to revision.

The results of this third year of regulation provide evidence that the Committee were right in fixing the quota at 82 ½ per cent. of standard.

There has been an encouraging increase in consumption in spite of the increase of 2 *d.* per lb. recently made in the duty on tea entering the United Kingdom.

In the course of a Conference held in the month of July 1935 by the representatives of the three Governments concerned, the Committee was invited to express its view on the effects of restrictive regulation of export of tea, and on the experience gained in the course of the first years of the operation of the agreement The Committee expressed the opinion that the operation of the agreement would be facilitated if the Governments of India and of the Netherlands Indies, not so far represented on the Committee, would appoint members to represent them These suggestions were favourably received, and delegates were appointed by the two Governments.

As regards the propaganda for the extension of consumption of tea, the Committee, on the basis of the decision adopted in the course of the previous year and relating to the co-ordination of the activity of the various organisations engaged in propaganda work, has decided to establish a body to undertake such co-ordination under the name of the International Tea Market Expansion Board This body appears to be giving considerable effort to the achievement of this end.

F. Arcoleo.

THE SOCIAL INCOME, AND THE CHANGES IN IT, BETWEEN 1931-1932 AND 1932-1933 IN ESTONIA, LATVIA, LITHUANIA, POLAND, AND CZECHOSLOVAKIA

SUMMARY Government measures, size of crops agricultural output, returns farm expenses, social income and the composition of the social income, in Estonia, Latvia Lithuania and Poland The farmers' position and the social income in Czechoslovakia Summing up.

In a previous article we dealt with the variations between 1931-32 and 1932-1933 in the social income from farms concerned predominantly with the growing of vegetable products in several European countries We are now concerned with the changes between with 1931-32 and 1932-33 in the social income from predominantly arable farms in Estonia, Latvia, Lithuania, Poland, and Czechoslovakia

A. — Estonia.

The following measures were taken by the Government to assist the farmers. The rate of interest on loans to farmers by the Land Bank was reduced to 2.5 per cent. By a law of 23 May 1933 every farmer who fulfilled the necessary conditions was given the right to obtain special loans which were compulsorily converted into long term loans; the total of these loans could not exceed 6,000,000 Estonian crowns. Measures were taken to make the domestic market for home produced agricultural products as large as possible; the duties on imported agricultural requisites were either removed or reduced. The system of import licenses, introduced in 1931-32, completely checked the importation of cereals and considerably reduced the importation of other agricultural products. Exports were strictly controlled and it was possible thus to maintain at a high level the quality of butter and eggs shipped to foreign countries. Measures were taken to create good conditions for the preservation of butter; arrangements were made with dairies to vary the price of milk according to its quality; and eggs were graded according to their size (see table on page 232).

The prices of agricultural products continued to fall. Exports of butter and eggs fell in 1932; but at the beginning of 1933 exports of eggs increased as a result of the measures taken by the Government; bacon exports also increased. Briefly one can say that the position of Estonian farmers became worse in 1932-1933, and that the government measures did not fulfil the expectations to which they gave rise. Here are relative statistics.

Prices of Agricultural Products, in Crowns.

		1931-32	1932-33
Rye	in quintals	15.4	14.1
Wheat	»	19.8	19.4
Barley	»	16.0	14.3
Oats	»	9.8	9.8
Potatoes	»	2.5	2.4
Butter exports	in 100 kg	151.5	99.7
Beef	»	39.0	26.0
Pig meat		51.6	50.3

The figures for output from the 300 farms which kept accounts were as follows:

	Rye (kg per hectare)	Wheat (kg per hectare)	Spring Wheat (kg per hectare)	Barley (kg per hectare)	Oats (kg per hectare)	Potatoes (kg per hectare)	Hay (kg per hectare)	Green-fodder (kg per hectare)	Milk (kg per farm)
1931-32	1,210	1,348	1,272	1,276	1,198	14,101	3,201	3,256	14,252
1932-33	1,403	1,254	1,190	1,042	1,036	13,666	2,955	2,574	12,627

The harvests were poor, and the scarcity of fodder reduced the output of dairy products. The increase in cattle and pigs was greater in 1932-33 than in 1931-32 as can be seen from the following figures:

Gross Return: Quantities per Hectare.

		Farms in all countries
Cattle (kg live weight)	1931-32	7 —
	1932-33	10 —
Milk (kg)	1931-32	272 —
	1932-33	253 —
Pig-meat (kg live weight)	1931-32	12 —
	1932-33	19 —
Cereals (quintals)	1931-32	1.06
	1932-33	1.15
Potatoes (quintals)	1931-32	0.86
	1932-33	0.99

TABLE I — *Social Income, Gross Return, and Farm Expenses, per Hectare as a Percentage of the Social Income for 1928-29*

GROUP		Number of farms	Average area in hectares	Animal production: Cattle: Breeding for slaughter and other purposes 1	Animal production: Cattle: Milk and dairy products 2	Animal production: Pigs 3	Animal production: Other animals 4	Vegetable products 5	Other branches 6	Total gross return 7	Working costs: Seeds, fodder, fertilisers 8	Working costs: Other expenses 9	Social income (total) 10	Social income: Income going to third persons: Taxes 11	Social income: Income going to third persons: Interest on debts 12	Social income: Income going to third persons: Wages of hired labour 13	Social income: Income going to third persons: Total 14	Social income: Operator's income: Remuneration of family labour 15	Social income: Operator's income: Family capital return 16	Social income: Operator's income: Total 17	Social income 1928-29 in national currency 18
Estonia																					
The whole country	1931-32	500	37 48	4 02	29 04	10 [illegible]	0 45	27 [illegible]	23 28	106 13	9 97	34 71	61 45	2 04	2 85	17 58	22 47	48 31	— 9 33	38 98	(79 28)
	1932-33	500	37 24	3 51	18 34	12 11	8 40	25 12	20 41	90 98	7 08	25 85	55 05	1 19	2 24	13 86	17 59	40 73	3 27	37 46	
Latvia																					
Livonia	1931-32	43	5[illegible] 80	9 31	55 10	20 17	11 [illegible]	34 11	25 83	160 80	16 28	63 82	80 79	4 26	5 98	39 06	49 20	65 33	— 33 74	31 59	(95 18)
	1932-33	40	30 36	8 35	57 [illegible]	20 8	9 52	30 86	21 53	161 05	12 22	53 82	95 01	3 97	4 45	30 90	39 32	57 90	2 21	55 69	
Courland	1931-32	3	43 0[illegible]	7 03	41 50	14 01	6 45	32 58	21 54	106 42	7 25	42 92	56 25	3 12	3 27	30 38	36 77	15 38	25 90	19 48	(89 91)
	1932-33	[illegible]	55 [illegible]	5 28	56 56	15 [illegible]	7 [illegible]	[illegible]	22 71	125 10	8 8	40 52	76 30	3 25	2 01	23 28	28 54	41 04	6 72	47 76	
Zemgale	1931-32	24	40 7	6 73	41 25	15 [illegible]	10 [illegible]	41 [illegible]	[illegible]	133 35	15 55	49 16	74 34	3 01	3 66	42 69	50 29	43 06	19 01	24 05	(100 08)
	1932-33	[illegible]	33 71	6 5	38 16	14 1	7 84	[illegible]	18 6[illegible]	133 25	9 [illegible]	45 52	77 81	2 77	2 51	30 99	36 27	33 95	7 59	41 54	
Latgale	1931-32	13	21 6[illegible]	7 12	36 [illegible]	[illegible]	[illegible]	[illegible]	4 91	172 39	10 80	61 84	99 66	4 95	5 33	21 34	31 62	104 35	36 31	68 04	(62 08)
	1932-33	16	19 05	9 [illegible]	55 45	17 16	14	62 [illegible]	55 48	178 37	9	50 17	112 66	4 67	1 76	18 11	24 57	101 85	13 82	88 05	
Farms of less than 20 hectares	1931-32	25	15 16	5 57	44 5	[illegible] 8	11 [illegible]	41	34 [illegible]	158 78	16 13	59 94	91 71	3 51	5 48	19 77	28 76	83 02	—20 67	62 95	(118 39)
	1932-33	[illegible]	14 73	5 36	57 31	[illegible]	11 [illegible]	55 [illegible]	58	155 [illegible]	14 35	44 62	100 82	2 36	5 20	22 18	27 98	67 06	5 78	72 84	
Farms of 20-50 hectares	1931-32	51	30 51	6 59	[illegible]	14 [illegible]	10 53	51 [illegible]	0	133 81	11 68	52 41	70 20	3 44	3 25	28 04	34 73	62 82	—27 26	35 56	([illegible] 32)
	1932-33	55	28 6[illegible]	7 08	41 49	16 78	8 [illegible]	[illegible] 88	21 51	133 16	8 04	47 [illegible]	77 78	3 24	2 82	21 51	27 37	52 21	— 1 80	50 41	
Farms of more than 50 hectares	1931-32	35	62 76	9 03	49 35	16 81	8 31	41 [illegible]	[illegible]	127 31	14 41	54 02	68 31	4 34	4 98	49 39	58 71	[illegible] 54	2[illegible] 34	10 20	(69 09)
	1932-33	20	62 12	0 82	43 25	16 85	7 17	4 [illegible]	20 91	1[illegible] 56	10 8	44 65	80 63	3 73	2 05	34 74	41 43	34 —	5 20	39 20	
Lithuania																					
The whole country	1931-32	100	21 35	0 74	55 67	54 [illegible]	1[illegible]	72 [illegible]	1 01	274 83	23 51	66 07	185 25	8 92	8 1	77 60	95 25	100 04	—10 02	90 02	(89 55)
	1932-33	124	23 57	8 24	42 —	55 [illegible]	21 15	71 52	54 10	245 08	10 12	65 13	163 53	8 77	7 17	42 29	58 23	98 61	6 69	105 30	
Poland																					
South	1931-32	14	8 08	5 90	18 2[illegible]	7 50	10 45	30 [illegible]	6 78	77 05	4 83	22 20	50 02	2 03	3 20	10 56	15 79	33 06	1 17	34 23	(404 56)
	1932-33	130	7 10	3 66	16 60	6 4[illegible]	8 34	22 17	5 94	63 18	3 41	18 53	41 44	2 12	3 45	5 66	11 43	30 03	— 0 02	30 01	
East	1931-32	63	16 54	2 12	13 83	7 55	8 04	20 4	6 59	67 89	3 01	17 30	47 58	2 24	1 99	11 63	15 86	34 12	— 2 40	31 72	(223 60)
	1932-33	63	15 95	2 85	11 14	8 69	7 64	26 40	6 34	65 43	2 46	13 61	47 36	2 55	2 57	10 25	15 17	28 11	4 08	32 19	
Centre	1931-32	150	12 83	1 87	12 03	8 64	8 62	27 85	6 52	65 53	4 58	18 52	42 13	2 55	3 85	8 79	15 47	28 18	1 22	20 96	(420 38)
	1932-33	14	11 90	3 16	10 61	10 23	7 88	23 26	5 53	66 67	2 94	14 53	43 20	2 44	2 70	6 40	11 54	24 44	7 22	31 66	
West	1931-32	84	18 59	4 11	20 40	12 22	8 84	32 26	7 89	85 72	9 90	33 69	42 13	2 34	4 88	15 96	23 18	23 68	4 73	18 95	(597 70)
	1932-33	75	19 47	4 90	15 68	13 31	8 43	28 26	7 69	78 27	6 22	26 22	45 83	2 31	3 45	14 75	20 54	20 64	4 65	25 29	
Poland																					
2 to 5 hectares	1931-32	57	3 90	3 64	21 57	7 35	12 34	25 91	8 63	79 43	6 67	24 53	48 23	1 75	3 59	5 57	10 91	42 42	5 10	37 32	(555 38)
	1932-33	57	3 72	3 30	17 28	6 96	9 50	19 45	6 47	63 05	5 91	17 71	41 43	1 73	2 92	3 20	7 85	33 58	0	33 58	
5 to 10 hectares	1931-32	141	7 42	2 82	15 23	8 26	10 44	31 1	6 69	74 61	4 99	21 39	48 23	2 46	3 04	6 45	12 55	36 82	1 14	35 68	(425 91)
	1932-33	125	7 32	3 75	12 91	8 61	9 22	26 2[illegible]	6 14	66 91	3 73	17 69	45 49	2 35	3 51	4 45	10 31	31 07	4 11	35 18	
10 to 15 hectares	1931-32	98	12 29	3 18	10 11	10 40	8 95	20 21	6 82	71 68	5 71	22 37	46 60	2 55	6 75	10 27	19 57	28 76	— 1 73	27 03	(379 96)
	1932-33	105	12 07	3 28	11 95	9 88	6 82	22 2	5 59	59 75	3 40	16	40 35	2 23	2 24	6 73	11 20	24 30	4 85	29 15	
15 to 30 hectares	1931-32	115	20 54	3 30	15 76	11 14	7 15	35 66	6 87	79 91	6 25	26 88	46 78	3 05	5 01	15 25	23 31	23 89	— 0 42	23 47	(291 38)
	1932-33	106	20 32	3 61	12 37	12 06	6 54	25 86	6 37	66 84	3 32	18 66	44 92	2 70	3 01	11 93	17 64	19 87	7 41	27 28	
30 to 50 hectares	1931-32	23	35 32	3 07	10 60	7 26	4 03	27 61	5 68	58 25	5 13	22 35	30 77	2 50	2	13 53	18 09	14 49	— 1 81	12 68	(309 50)
	1932-33	24	37 15	3 81	9 76	9 29	3 89	25 0	5 02	56 80	3 08	20 24	33 48	2 78	3 20	13 29	19 33	12 51	1 64	14 15	

TABLE I

Group			Number of farms	Average area in hectares	Animal production Cattle Breeding for slaughter and other purposes 1	Milk and dairy products 2	Pigs 3	Other animals 4	Vegetable products 5
Czechoslovakia									
Forage farms	West	1931-32	34	16.54					
		1932-33	54	14.[illegible]					
	East	1931-32	8	13.91					
		1932-33	8	11.95					
Farms growing cereals and potatoes	West	1931-32	11	1[illegible]					
		1932-33	1[illegible]	16.[illegible]					
	East	1931-32	25	1[illegible]					
		1932-33	[illegible]	18.58					
Sugar beet farms	West	1931-32	[illegible]	[illegible]					
		1932-33		[illegible]					
	East	1931-32	14	15.5[illegible]					
		1932-33	16	16.55					

Calves and pigs consumed more milk in 1932-33 than in 1931-32, the former consumed 4.19 per cent of the output against 3.45 in 1931-32 and the latter 1.40 per cent against 1.08 in 1931-32. Larger quantities of cereals and potatoes were sold in 1932-33.

The gross return in crowns from the production of cereals and from pig fattening increased slightly, but this increase was not sufficient to offset the fall in the gross return from other branches of production. The total gross return fell more than did working costs and as a result the social income for 1932-33 is lower than that for 1931-32. The net return, the family capital return plus the interest on debts, increased however, since the cost of labour fell considerably.

The table on page 236 gives figures for 1932-33 for the gross return, the social income, farm expenses and net return in crowns per hectare for farms in various parts of Estonia and in various size groups.

With the exception of farms in the Saare district the gross return on animal husbandry (stock breeding and milk production) is almost the same in all regions. The size of the total gross return and of the social income depends primarily on the return on arable farming. The net return does not follow the same curve as that of the social income. Farms in the Jarwa district yielded a greater net return because they had lower costs of labour.

(*continued*).

Other items	Total gross return	Working costs		Social income (total)	Social income							Social income 1928 29 in national currency
					Income going to third persons				Operator's income			
		Seeds, fodder, fertilisers	Other expenses		Taxes	Interest on debts	Wages of hired labour	Total	Remuneration of family labour	Family capital return	Total	
6	7	8	9	10	11	12	13	14	15	16	17	18
				77 14	3 16	47 13	27 45	77 71	44 67	45 27	0 66	(2212 96)
				69 66	2 95	6 59	25 53	35 07	45 66	11 0	34 59	
				88 16	2 14	5 20	23 18	30 52	60 07	2 45	57 64	(1540 03)
				65 41	2 54	5 43	12 99	18 96	71 03	20 58	44 45	
				82 87	3 57	8 03	27 55	39 15	56 53	7 30	43 72	(2724 87)
				74 13	5 55	7 00	20 71	37 96	58 22	2 05	36 17	
				70 70	3 74	11 74	27 11	42 59	69 48	41 37	28 11	(1291 04)
				72 12	4 52	9 22	22 81	36 55	60 84	25 27	35 57	
				67 62	3 75	10 03	28 40	42 18	22 69	2 75	25 44	(3613 95)
				66 12	3 79	8 58	26 27	38 64	25 64	1 81	27 48	
				48 30	3 14	9 01	18 13	30 28	41 04	23 02	18 02	(2412 18)
				71 91	3 48	8 10	21 52	33 10	41 12	2 31	38 81	

As the size of the farms increases the gross return, farm expenses, and social revenue, per hectare decline The return on capital was largest in the case of farms of 30 to 50 hectares

In order to produce 100 crowns of social income, farms in the Walga, Wiljandi, Parnu, and Laane districts required a higher gross return than farms in other districts because the working costs per 100 crowns of social income were higher, it was mainly in milk production that efforts were made to produce a higher gross return The larger the farm the greater are the working costs per 100 crowns of social income But on the other hand the larger the farm the greater is the gross return on milk and arable production and the greater the total gross return.

B — Latvia.

On 15 June 1932 the law concerning the monopoly of imported wheat came into operation The State alone has the right to import rye and wheat The Government is obliged to buy home-grown rye and wheat at pre-established prices, for rye this is 21 60 lats per quintal and for wheat, 27 lats per quintal A monopoly has been created for spirits, the price of potatoes was in 1932 4 80 lats per quintal. On 21 June 1932 Parliament voted a law which fixed the price of butter and pig-meat (see table on page 237).

Social Income, Gross Return, and Farm Expenses in Estonian Crowns per Hectare and as a Percentage of the Social Income

Description	Slaughter stock	Milk	Pigs	Vegetable production	Other branches	Total	Working costs	Social income	Taxes	Wages	Net return
The whole country	3	14	10	22	23	72	29	43	1	43	— 1
	6 98	32 56	23 25	51 16	53 49	167 44	67 44	100	2 32	100	2 32
Tartu	3	11	13	28	30	90	35	55	2	55	2
	5 45	20 00	23 64	50 91	54 55	163 64	63 64	100	3 64	100	— 3 64
Woru	3	14	8	24	30	79	29	50	1	51	2
	6	28	16	48	60	158	58	100	2	102	4
Wiru	3	16	9	27	23	78	31	47	1 3	45	0 7
	6 38	34 04	19 15	57 45	48 94	165 96	65 96	100	2 76	95 74	1 50
Jarwa	3	13	9	23	24	72	26	46	2	38	6
	6 52	28 26	19 57	50	52 17	156 52	56 52	100	4 35	82 61	13 04
Karju	3	18	6	18	22	67	26	41	1	39	1
	7 32	43 90	14 63	43 90	53 66	163 41	63 41	100	2 44	95 12	— 2 44
Walga	3	14	9	24	22	72	32	40	1	45	6
	7 50	35	22 50	60	55	180	80	100	2 50	112 50	— 15
Wiljandi	3	15	11	19	18	66	27	39	1	39	— 1
	7 69	38 46	28 21	48 72	46 15	169 23	69 23	100	2 56	100	— 2 56
Parnu	3	15	9	19	19	65	28	37	1	40	— 4
	8 11	40 54	24 32	51 35	51 35	175 67	75 67	100	2 70	108 11	— 10 81
Läane	3	15	7	17	22	64	31	33	1	40	— 8
	9 09	45 45	21 21	51 52	66 67	193 94	93 94	100	3 03	121 21	— 24 24
Saaremaa	2	7	4	15	16	44	16	28	1	27	0
	7 14	25	14 29	53 57	57 14	157 14	57 14	100	3 57	96 43	0
Farms of less than 20 hectares	4	22	15	35	38	114	43	71	1	72	— 2
	5 63	30 99	21 13	49 29	53 52	160 56	60 56	100	1 41	101 40	— 2 81
Farms of 20-30 hectares	3	14	10	22	22	71	27	44	1	44	— 1
	6 81	31 82	22 73	50	50	161 36	61 36	100	2 27	100	— 2 27
Farms of 30 50 hectares	3	13	8	19	18	61	24	37	1	35 6	0 4
	8 11	35 13	21 62	51 35	48 65	164 86	64 86	100	2 70	96 22	1 08
Farms of more than 50 hectares	2	10	6	15	14	47	20	27	1	28	— 2
	7 41	37 04	22 22	55 55	51 85	174 07	74 07	100	3 71	103 70	— 7 41

Prices of Agricultural Products in Lats

Regions		Wheat (Quintals)	Rye (Quintals)	Barley (Quintals)	Oats (Quintals)	Potatoes (Quintals)	Slaughter stock (per head)	Pig meat (Quintals)	Milk (Kg)
Livonia	1931-32	27 27	22 23	15 30	12 60	5 33	114	116	0 14
	1932-33	25 85	21 78	13 89	9 84	4 31	50	58 86	0 10
Courland	1931 32	22 76	19 19	14 53	11 84	5 04	115	109 50	0 13
	1932 33	24 69	20 94	13 84	9 77	3 72	51	60 75	0 10
Zemgale	1931-32	21 88	19 73	15 21	12 56	5 23	137	116	0 14
	1932-33	23 86	20 88	13 73	9 84	4 13	59	60 16	0 10
Latgale	1931-32	22 74	18 63	13 88	11 51	4 02	123	109	0 16
	1932 33	23 58	20 24	13 09	8 90	3 64	55	60 99	0 12

Physical Returns from Annual Production, per Hectare

Regions		Wheat (Quintals)	Rye (Quintals)	Barley (Quintals)	Oats (Quintals)	Potatoes (Quintals)	Hay from grass lands (Quintals)	Milk (Kg per cow)
Livonia	1931 32	10 47	7 37	11 43	11 25	125 60	22 95	2 385
	1932 33	13 05	13 48	10 22	9 74	123 87	20 75	2 438
Courland	1931 32	10 51	8 30	11 42	10 82	126 26	20 40	1 932
	1932 33	14 32	14 37	11 20	10 74	133 49	19 46	2 120
Zemgale	1931 32	11 08	7 32	12 11	12 01	120 31	22 70	2 322
	1932 33	15 28	13 16	12 50	10 74	119 87	25 10	2 125
Latgale	1931 32	7 51	6 03	8 35	8 41	96 17	20 35	1 654
	1932 33	10 54	10 60	9 02	8 91	99 81	19 59	1 822

The physical output was higher in 1932-33 than in 1931-32 with the exception of barley and oat production in the Livonia district The output of milk per cow fell in the Zemgale district in spite of an output of hay greater than that of the previous year In 1932-33 the farmers sold larger quantities of cereals, produced more milk and increased their cattle and pigs herds, as can be seen from the following figures

Gross Return Quantities per Hectare

		Cereals (Quintals)	Potatoes (Quintals)	Cattle (Heads)	Milk (Kg)	Pig meat (Kg live Weight)
Livonia	1931 32	0 68	0 64	0 053	258	11
	1932-33	0 94	0 51	0 110	375	23
Courland	1931-32	1 03	1 18	0 055	171	11
	1932-33	1 38	1 51	0 093	277	28
Zemgale	1931-32	1 61	0 46	0 049	295	13
	1932-33	1 74	0 56	0 108	382	24
Latgale	1931-32	0 90	1 11	0 036	141	10
	1932 33	1 17	0 94	0 104	183	17

This increase of sales allowed the farmers of the Livonia, the Courland, and the Latgale districts to obtain in 1932-33 a gross return in lats greater than that in the previous year. The greatest increase of value occurred in the growing of vegetable products The slight fall in the total gross return in the Zemgale district was the result mainly of a considerable fall in the gross return from dairy products.

Working costs fell much more considerably than did the gross return; social income appreciably increased. Other expenses (labour and interest on debts) also fell heavily so that the return on family capital, and the farmer's income, increased

On farms in the various size groups the same tendencies can be seen in spite of the slight fall in the total gross return on farms having an area of 20 to 50 hectares and of more than 50 hectares, the social income, the family capital return, and the farmer's income, increased considerably as a result of the fall in farm expenses.

C. — Lithuania.

In 1932-33 the Government provided in the budget a sum of 14,400,000 litas to be used to maintain the price of pig-meat, a sum of 6,300,000 litas to keep up the price of butter, and a sum of 70,000 litas to keep up the price of wheat. The price of cereals was fairly easily maintained at its previous level but the prices of animal products fell considerably in spite of the measures taken by the Government.

Prices of Agricultural Products: in Litas.

Wheat (quintals)	1931-32	13 70
	1932-33	14 —
Rye (quintals)	1931-32	12 00
	1932-33	12 30
Barley (quintals)	1931-32	11 30
	1932-33	10 40
Oats (quintals)	1931-32	10 20
	1932-33	9
Potatoes (quintals)	1931-32	3 75
	1932-33	3 20
Beef (kg live weight)	1931-32	1 05
	1932-33	0 85
Milk (kg)	1931-32	0 32
	1932-33	0 25
Pig-meat (kg live weight)	1931-32	2 15
	1932-33	1 45

The fall in the prices of cattle and of animal products put the Lithuanian farmers, in 1932-33, in a bad position which was aggravated by the burden of agricultural indebtedness. Production and export of milk and dairy products did not increase as much as in previous years. In 1932-33 the exports of butter amounted to 9,930 metric tons and had a value of 42 million litas against 8,700 tons with a value of 47 million litas, in 1931-32; cheese exports reached 790 tons having a value of 2 million litas against 1,136 tons with a value of 3.5 million litas, in 1931-32; meat exports reached 34,910 tons against 29,660 tons in 1931-32; the number of exported eggs was 46 millions against 61 millions in 1931-32. However, the growth of the population of the towns increased home cosnumption so that there was no fall in production except in the case of dairy products.

Quantitative Gross Return.

Cereals (quintals)	1931-32	2 78
	1932-33	2.70
Potatoes (quintals)	1931-32	2.01
	1932-33	2.58
Beef (kg live weight)	1931-32	4 —
	1932-33	9 —
Milk (kg)	1931-32	151 —
	1932-33	117 —
Pig-meat (kg live weight)	1931-32	34 —
	1932-33	36 —

As a result of the decrease in the output and of the decline in the prices of milk and its products, and as a result, further, of the fall in the return on production classed under " other branches " the total gross return in litas was smaller in 1932-33 than in 1931-32. This fall in gross return was reflected in the social income since working costs did not fall to the same extent. Family capital return, however, increased appreciably; wages were reduced by almost 50 per cent. The farmer's income, which also increased, was higher relatively to the social income than in 1928-29.

Value, in Lats per Hectare and as a Percentage of Social Income.

Size of farms	Gross Return					
	Breeding Stock, Slaughter Stock, etc.	Milk	Pigs	Vegetable production	Other branches	Total
5 to 10 hectares	10	54	76	83	89	312
	4 69	25.35	35 68	38.97	41 79	146 48
10 to 20 hectares	8	39	54	65	58	224
	5 44	26 53	36 73	44.22	39.46	152 38
20 to 50 hectares	6	29	42	52	47	176
	5.13	24 79	35 90	44.44	40.17	150.43

Size of farms	Working costs	Social income	Taxes	Labour costs	Net return
5 to 10 hectares	99	213	9	185	19
	46.48	100	4.23	86.85	8.92
10 to 20 hectares	77	147	8	125	14
	52.38	100	5.44	85.03	9.53
20 to 50 hectares	59	117	8	101	8
	50.43	100	6.84	86.32	6.84

The preceding table shows the respective positions in 1932-33 of farms in various size groups.

Obviously, this table confirms what has already been said; namely, that the gross return and the social income per area unit are the larger the smaller is the farm; in other words the more general is small scale farming the denser is the population that can be supported. The costs of labour per 100 lats of social income, and, less exactly, the working costs per 100 lats of social income are the same in 1932-33 in Lithuania on farms belonging to the three size groups. In order to produce a hundred lats of social income farms of 20 to 50 hectares had to obtain from arable farming a higher gross return than did farms of 5 to 10 hectares since they had a lower subsidiary income from dairy products.

D. — **Poland.**

The Government took measures to prevent a too severe fall in the price of agricultural products, to lower costs of agricultural production, and to facilitate the adjustment of agricultural production to the unfavourable conditions produced by the crisis. It protected the home market and maintained a system of import duties and export bounties. Import duties on butter were increased from 12 zlotys 50 gross. to 200 zlotys per quintal. Trade in butter and dairy products was made the subject of State regulation on 12 December 1932. Various measures were taken to facilitate the repayment of debts. Between 1931-1932 and 1932-33 exports of agricultural products fell in weight by ten per cent and in value by a fifth. This decline in export trade exercised a depressing influence on the prices of agricultural products which the State was trying to maintain.

Prices of Certain Agricultural Products, in Zlotys.

	1931-32	1932-33
Wheat (quintals, on the farm)	24.95	25.80
Rye (quintals, on the farm)	22.94	16.36
Barley (quintals, on the farm)	20.23	14.48
Oats (quintals, on the farm)	20.87	13.60
Potatoes (quintals, on the farm)	5.05	3.63
Beef (kg live weight, Warsaw)	0.78	0.67
Pig-meat (kg live weight, on the farm)	0.94	0.86
Milk (quintals, on the farm)	0.21	0.17

The only price that rose was that of wheat. The fall was particularily heavy in the cases of milk, rye, barley and oats.

The output of cereals and potatoes was greater than in 1931-32 with the exception of the output of wheat. Rust appeared shortly before the harvest and it is necessary to go back ten years in order to find a wheat harvest as bad as that of 1932. Fodder crops did not yield a satisfactory return.

Grass lands yielded 19.55 quintals of hay in 1931-32 and 18.31 quintals in 1932-33.

Cattle and pig production was greater in 1932-33 than in 1931-32. Except in the West and on farms of 10 to 15 hectares and of 15 to 30 hectares more milk was produced in 1932-33; the sales of cereals and of potatoes together were greater than in 1932-33.

Return on Arable Products Quintals per Hectare

Regions		Wheat	Rye	Barley	Oats	Potatoes
South	1931-32	13 07	12 02	13 92	13 50	171 16
	1932-33	8 25	13 35	14 98	14 11	153 84
East	1931-32	10 04	8 65	10 94	8 74	127 21
	1932-33	7 50	9 33	12 19	10 05	113 77
Centre	1931-32	13 66	11 85	14 56	12 54	154 16
	1932-33	10 92	12 67	15 59	13 62	151 07
West	1931-32	15	12 73	14 38	14 86	136 07
	1932-33	15 71	15 75	18 52	17 49	145 10

Gross Return Quantities per Hectare

Description		Cattle (Kg Live Weight)	Milk (Kg)	Pigs (Kg Live Weight)	Cereals (Quintals)	Potatoes (Quintals)
South	1931-32	23	406	37	3 72	3 58
	1932-33	25	453	35	3 42	3 97
East	1931-32	6	148	19	1 64	1 96
	1932-33	9	150	23	1 83	2 44
Centre	1931-32	10	243	39	3 23	3 84
	1932-33	20	262	50	3 60	4 20
West	1931-32	21	390	52	3 77	3 1[illegible]
	1932-33	29	367	62	4 56	3 85
Farms of 2 to 5 hectares	1931-32	25	547	43	3 50	4 82
	1932-33	28	565	45	3 17	5 42
Farms of 5 to 10 hectares	1931-32	15	511	37	3 57	3 91
	1932-33	24	523	43	3 54	4 75
Farms of 10 to 15 hectares	1931-32	15	294	42	3 14	3 18
	1932-33	19	267	44	3 11	3 31
Farms of 15 to 30 hectares	1931-32	12	220	35	2 99	2 34
	1932-33	16	212	41	2 94	2 27
Farms of 30 to 50 hectares	1931-32	12	157	24	2 61	1 54
	1932-33	18	178	33	3 18	1 72

The fall in the gross return in 1932-33 was due almost entirely to the decline in prices, the output from milch cows and from arable farming was the least satisfactory

The social income was lower in 1932-33 than in 1931-32 in the South at the same level in the East, and higher in the Centre and in the West The reason for this is that while gross return fell working costs did not fall in the South On the other hand working costs declined appreciably in the East, still more in the Centre, and to an even greater extent in the West as the following figures show (see table on page 242)

Family capital return and the farmer's income fell in 1932-33 in the South, and increased in the other three regions

The social income was smaller than that of 1931-32 in the case of farms in the first four of the size groups shown below and greater for farms in the last

Working Costs as Percentage of Gross Return.

	1931-32	1932-33	Decline
South	34.8	34.7	- 0.1
East	29.9	25.3	- 4.6
Centre	35.2	28.8	- 6.4
West	49.7	41.4	8.3

size group The falls in working costs as a percentage of the fall in the gross return were as follows:

Farms of 2 to 5 hectares	59 %
Farms of 5 to 10 hectares	64 %
Farms of 10 to 15 hectares	58 %
Farms of 15 to 30 hectares	86 %
Farms of 30 to 50 hectares	287 %

Family capital return increased for farms in all the size groups; the farmer's income increased for farms from 10 to 15, 15 to 30, and 30 to 50 hectares. On farms of 2 to 5 hectares and 5 to 10 hectares the interest on debts fell very slightly; the remuneration of family labour fell much more than the costs of hired labour. On farms of 10 to 15 hectares and 15 to 30 hectares the fall in the cost of hired labour and interest on debts was much greater than that of the remuneration of family labour. Finally, on farms of 30 to 50 hectares the raising of the interest on debts and of taxes was less than that of the social income.

E. — Czechoslovakia.

For technical reasons the Accountancy Office in Prague has not given us figures for the composition of the gross return and of the working costs of the farms which it surveys; our study of this country will therefore be less complete than that of other countries .

In 1932-33 the economic position of the Czechoslovak farmers was unsatisfactory in spite of assistance from the Government, from political and professional organisations, and from co-operative societies The prices of agricultural products fell considerably with the exception of the prices of cheese, eggs, and pig-meat.

Prices of Agricultural Products, in Czechoslovak Crowns

		1931-32	1932-33
Wheat	quintals	148 —	154,20
Rye	»	145.70	99.35
Barley	»	116.50	84.50
Oats	»	119.90	78.90
Potatoes for human consumption	»	34.60	29 —
Butter	»	2,158 —	1,977 —
Eggs (100's)	»	58.25	66.05
Beef	»	844 —	775 —
Pig-meat	»	914 —	1,031 —

The difference between the level of the prices of agricultural products and that of the prices of industrial products increased.

	1931-32	1932-33
Index for agricultural products	589	510
Index for industrial products	857	829

The figures for social income seem to show that the position of Czechoslovakian farmers improved in the East and got worse in the West. Exception must be made for farms producing forage crops; the Eastern group of farms consists of only 8 farms, and on Western farms the interest on debts changed from 47 per cent in 1931-32 to 6 per cent in 1932-33 and this suggests that these farms are not really representative of the group of farms to which they belong. The family capital return and farmer's income from farms in the West and in the East growing cereals and sugar beet are lower in 1932-33 than in 1931-32. In the case of farms in the West and East which grow cereals and of farms on the West which grow sugar beet this is due to the decline in the cost of hired labour and of the interest on debts; in the case of farms in the East which grow sugar beet it is due to the very considerable rise in social income, costs having remained constant.

Summing-up.

In 1931-32 the social income on farms which kept accounts rose:

in Estonia	to 61 %	of that of	1928
in Latvia	» 56-99 %	»	»
in Lithuania	» 185 %	»	»
in Poland	» 31-50 %	»	»
in Czechoslovakia	» 48-88 %	»	»

In Lithuania bad harvests had seriously disturbed the farmers' position; social income had fallen very low. This explains why the social income in 1931-32 is so high relatively to that of 1928.

From 1931-32 to 1932-33 social income fell in Estonia (where the total gross return fell more than did working costs, in spite of an increase in the gross return from cereals and pigs), in Lithuania (as a result of the fall in the prices of agricultural products); in Poland in the South (where the gross return fell while working costs remained at the same level as in 1931-32), and on farms of 2 to 30 hectares (where working costs fell less than did the gross return); in Czechoslovakia in the West and on farms producing forage crops in the East.

Social income rose in Latvia (where the working cost fell less than did the gross return); in Poland on farms in the Centre and the West and on farms of more than 30 hectares, for the same reasons; finally, in Czechoslovakia on sugar beet farms in the East.

From this and the preceding articles it appears that in spite of their efforts governments everywere were hardly able to maintain in 1932-33 an equilibrium between the prices of agricultural products and those of industrial goods, favourable to the farmers.

J. DESLARZES.

THE CANADIAN ROYAL COMMISSION ON PRICE SPREADS

CONTENTS: I *Introduction* — II *The problem of monopolistic organisation in Canada.* — Growth and effect of imperfect competition on the farmer. — III *Conclusion.*

I. — Introduction.

On 2 February 1934 the Canadian House of Commons adopted a resolution, containing, among other terms, the following: " That a Select Special Committee of eleven members of the House be appointed to inquire into and investigate the causes of the large spread between the prices received for commodities by the producer thereof, and the price paid by the consumers therefor; and the system of distribution in farm and other natural products, as well as manufactured products and... to inquire into and investigate:—

" the effect of mass buying by department and chain store organizations upon the regular retail trade of the country, as well as upon the business of manufacturers and producers...

" the relation between the flour milling industry and the bakeries of the country...

" the methods and system prevailing in the marketing of livestock and animal products for domestic consumption and export, and the extent to which the present system affords or restricts opportunity for fair returns to producers ."

The Committee was given extensive powers to call witnesses, examine documents and records and to make investigations on its own behalf.

On 9 April 1935 the Commission (the Committee had in the meantime become a Royal Commission) submitted its report (1), 10 members signing—3 with reservations—whilst one member made a separate minority report.

The Report is of even wider interest than its limitation to Canadian problems suggests; for it deals with one of the most important aspects of the relation between industry and agriculture, namely, the exercise of monopolistic influences by industry both in buying the products of farmers and in selling to them the products of industry. The world agricultural crisis has been marked, in the legislative field, by an attempt to organise the marketing of agricultural products in such a way as to lessen the disability of the farmer in facing, single-handed and individualistically, the monopolistic tendencies of modern history. The late stages of industrial capitalism reached before the great war saw the endeavour of labour to overcome similar disabilities through collective organisation—trade unions, labour guilds, etc. Agriculture, indeed was slow to follow. The world depression however was characterised—in almost all countries—by a far greater fall in agricultural prices than in industrial prices and in the cost of living; in consequence, farmers the world over tended to be particularly hard hit. Trends in industrial policy were not conducive to a remedy of the farmers' situation through reduction of industrial prices. In consequence, endeavours of all kinds were made to oppose to relatively inflexible industrial prices correspondingly inflexible agricultural prices. The means adopted varied according to the character of the country and products, tariffs, regulation of imports and collective marketing being the more important. Most of the measures involving compulsory marketing organisations were evolved at fairly late stages of the depression—in Great Britain in 1932, in the United States in 1933. In Canada, the divergence between agricultural and other prices was particularly great. Whereas the general index, based on 1926, had fallen to 67 in 1932, in the case of farm products the index had fallen to 48. Only in 1934 however was the Natural Products Marketing Act, designed to facilitate collective bargaining on the part of farmers, passed. Under this Act marketing schemes were evolved in almost all branches of Canadian agriculture, though not in wheat, which was affected by other measures. It should be noted that with the principal exception of wheat by far the greater part of Canadian agricultural produce is consumed in Canada, as follows:—

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(1) Report of the Royal Commission on Price Spreads. Ottawa 1935.

	Domestic consumption as percentage of production in 1933
Wheat	35 9
Dairy products	95 4
Butter	98 5
Cheese	31 4
Cattle (Beef and Veal)	95 0
Hogs	90 8
Eggs	99 1
Fruit	
Apples	31 0
Peaches	100 0
Strawberries	99 3
Vegetables	
Potatoes	96 0
Turnips	97 3
Sugar-beets	96 9

Thus, apart from the problem of wheat, Canadian farmers must be particularly interested in the domestic organisation of the agricultural market, and a thorough investigation of this question can evidently be of interest to farmers in other countries in which the domestic market is of outstanding importance. Though few countries indeed have reached the advanced stage of industrial organisation to be found in North America, the Canadian Report can be of interest to most countries, in that it indicates essentially modern tendencies which can conceivably operate elsewhere but which, in order to be beneficial, must be foreseen and controlled to some degree in advance.

In its detail the Report deals with a variety of subjects, of direct, indirect and remote interest to agriculture. It is divided into nine chapters, the first three of which deal with the character of monopoly in general and as it manifests itself in Canada; the fourth with nine industries, six of which are of consequence to farmers and which depend on the farmer either as a supplier of produce or as a buyer of industrial goods; the fifth with labour and wages; the sixth with the primary producer; the seventh and eighth with distribution and the consumer and the last with the problems of State control and with recommendations.

II. — The Problem of Monopolistic Organisation in Canada.

The dominant form of industrial and commercial organisation of Canada today can be regarded neither as perfectly competitive nor as completely monopolistic, but rather as the intermediate form known as " imperfect competition. " " This condition, which is more characteristic of our present economy than complete monopoly, exists when the output of any one producer or purchaser is a significant proportion of the total supply marketed, that is, when one producer may affect the price by withholding his supply. " In the view of the Majority of the Commission, certain consequences result: " Price no longer automatically adjusts itself to supply and demand.... the dominant producers fix the price they deem most profitable and attempt to adjust their production to sales at that determined price....." " Where imperfect competition prevails, a definite market price is not determined by supply and demand; price may be set anywhere within the limits of a zone of indeterminateness.... in acccordance with the relative bargaining power of the parties concerned. " " Unfair competitive practices develop.... there is.... a strong disinclination to enter into any serious price competition because there is a strong sentiment against spoiling the market. But there is, at the same time, a strong urge to increase sales so as to make some use of idle plant, and reduce the heavy overhead costs typical of modern industry. This urge to increase sales without serious price reduction is often the explanation of the intensified competition which breeds unethical practices..... " " The bargaining advantage of strong organized groups may lead to the exploitation of the weak and unorganized.... In an effort to avoid such exploitation, workers have organized trade unions and governments have enacted minimum wages laws. But there are groups of self-employed primary and small secondary producers who remain subject to such exploitation, all these circumstances unbalance modern economic society in the sense that not all of its parts adjust themselves at the same speed or in the same degree to any influence that makes itself felt at one point. Necessary readjustments are therefore concentrated on the flexible sections of our economy where their effect is intensified by the rigidity in other sections. " An illustration is offered by the indices of prices and production in the agricultural implements industry and in agriculture, as shown in the table opposite In the former case, prices hardly fall as a result of the monopolistic organisation of the industry. In consequence production falls by 86.4 per cent. In the latter case, prices fall by nearly 50 per cent. whilst production actually increases.

The effect of monopolistic organisation in industry on the primary producer is brought out by the investigations of the Commission into the meat packing, fruit and vegetable canning, tobacco, agricultural implements and fertilizer industries.

Year	Agricultural Implements		Agriculture	
	Prices	Production	Prices	Production
1929	100 0	100 0	100 0	100.0
1930	98 8	72.8	81 6	101 9
1931	98 8	19 2	55 9	97 9
1932	97 3	9 0	48 0	113 1
1933	93 6	13 6	50 6	104 0

The meat packing industry is one of the largest Canadian industries. Indeed measured by the gross value of output it was the third largest industry in 1932 but measured by the value of materials used it was actually the first Canadian industry. It can easily be seen therefore that it is an industry of vital importance to the farmer in general and the livestock producer in particular. This industry, which works under conditions of large scale production, is dominated by two concerns which together accounted in 1933 for 85 per cent. of the total production. During the years of depression the industry was able to maintain its profits despite a tremendous decrease in the value of its output. In spite of a decline in the value of production amounting to 50 9 per cent. between 1929 and 1933—a larger decline than in the value of production of industry as a whole—the value added by manufacture declined only by 24.5 per cent. The cost of materials, roughly corresponding to the sum paid the livestock producer, declined however by 56 8 per cent. This situation is different from that in industry as a whole, for there the value of production declined by 47.2 per cent. and the value added declined by 41.4 per cent.—in other words, a far greater proportion of the decline in the value of production was due to the decline in the value added, or in returns to industry, and less to the decline in the returns to the primary producer. In the meat packing industry in 1929 " for every dollar's worth of meat sold 81.7 cents went to the suppliers of materials, in 1933 however, although the consumer's dollar purchased approximately 80 per cent. more meat than in 1929 out of each dollar the producer received only 76.3 cents and the packer 23.7 cents. "

In the view of the Commission, this specially privileged position of the meat packing industry has a direct relation to the monopolistic character of the structure of the industry. " The dominant position of the two large companies.... has undoubtedly secured for them some measure of control over both livestock prices and selling prices for their product. "

The result of the economic depression on the livestock producer undoubtedly tended to be accentuated by his relatively weak bargaining position with the buyer of his product. The power exercised by the two leading meat packing companies reflects itself in the organisation of marketing in the crisis years. Before the concentration of the industry in a few hands, livestock was largely disposed of in public stock yards, set up by the Departments of Agriculture, in which sellers and buyers, of which there were sufficient numbers to make the market really competitive, met together, a competitive market price, reflecting the prevailling conditions of supply and demand, resulting. " In recent years, this situation has completely changed.... livestock purchasing.... is concentrated, with a result, as our evidence shows, of lack of price competition among packer-buyers. From evidence given to the Commission it appeared that the large buyers often arranged amongst themselves, before the opening of the market, the prices they would offer, and other evidence revealed that once a buyer had made an offer, either on the ranch or in the stock yards, other buyers would not go above this. These circumstances have naturally led to a weakening of the attraction of the stock yard to the livestock producer, and have made it easier for the packing companies to develop a system of direct deliveries, which places in their hands even greater possibilities of control of the price paid to the producer. Under this system stock is transported directly from the ranch to the packing plant, where it is weighed and graded by the packer himself. The open market tends thus to disappear. The producer, in effect delivers his live stock to the packer and trusts that he will be treated fairly, as to weight, grade and price. " In these circumstances, it is not difficult to see who is in the strong and who in the weak position. " The packers pay, indeed, the market price. But since they themselves do not seriously compete on the open market, and since they are increasingly obtaining supplies by direct shipment, it is clear that the " market price " is itself largely fictitious. " These direct shipments therefore, have the effect of breaking down the price upon the public stock yards, and when this price has been so broken down to a satisfactory level to the packer, then he secures his necessary supply. Not unnaturally it follows that on a slow or draggy market, prices are easily depressed. "

The growers of fruits and vegetables, who form an important part of the agricultural population in Ontario, Quebec and British Columbia, appear to be at a similar disadvantage as the live stock producers in their dealing with the buyers. This industry is again dominated by a small number of large concerns, whose policy and methods do not work favourably to the producers. The amount paid by the industry to the growers is only a relatively small proportion of the sales value of the canned goods. The grower's share of prices received from the largest canning company during 1933 averaged, for eight products, 18 per cent. From 1929 to 1933 the percentage of the selling price of canned tomatoes—the most important of the canned goods—going to the grower varied each year as follows.

1929	19.4	1932	17.9
1930	24.5	1933	16.8
1931	23.3		

The largest elements in the canner's costs include the cans themselves, which averaged in these years between 22 and nearly 29 per cent. of the total cost, and labour. Fixed or overhead costs are particularly high, reflecting the unsound financial structure of the industry which is " characterised by over-expansion resulting in surplus capacity, an illusory capitalization of companies, a fierce struggle on the part of the largest companies to maintain and increase their position at the expense of the smaller, and an equally intense effort on the part of these smaller companies to survive in the face of this struggle."

It is noted in the Report that in 1933, the year in which the lowest price was paid for tomatoes, the largest company gave a bonus to holders of Second Preferred Stock "the major portion of which was owned or controlled by the officers and directors of the company." Further in each of these years, as a result of the intensified competition quoted, the average selling price of canned tomatoes was below cost, indeed, strikingly so. "The sale of tomatoes constantly below cost has not only had a demoralizing effect throughout the trade in general but has helped to depress prices to the producer."

	Average selling price of 1 doz. cans tomatoes $	Average cost of 1 doz cans tomatoes $
1929	1 312	1 353
1930	1 175	1 285
1931	.81	1 184
1932	84	1 217
1933	84	1 189

The superior influence of the large industry company over the primary producer is evidenced by the way in which dealings are carried out. The selling transaction is generally governed by a written contract which among other things deals with "the acreage to be planted, the supply of suitable seed, the report of crop conditions, the maximum quantities of produce per acre that is to be accepted, the quality of produce, penalties for lack of quality, the dates for beginning and ending delivery, limitation of deliveries, price to be paid for the produce and the terms of payment." The grower has very little to say in the preparation of the contract which is a document.... "drawn up primarily for the protection and in the interests of the canning company." "The grower appears in general to be dissatisfied with the contract." "It is contended on behalf of the growers that the contract is all in favour of the company; that under it the grower was bound to deliver, but that the canner may escape its terms, and either not accept amounts stipulated or vary them according to his interests. No provision is made for arbitration and the canner is the sole judge as to quality, delivery time, and conditions permitting limitation of deliveries. There was the further contention that whatever the form of contract may be, the grower's financial position is such that he is often obliged to accept it, even at prices below production costs." Recently, clauses have also been inserted in these contracts prohibiting growers from supplying other than the contracting canning companies. Very often, in consequence, the grower is left with large quantities of produce on hand at the end of the season, which the large canning firm does not want and which the grower is prohibited from selling unless he can afford to lose his largest customer.

Another illustration of the weakness of the farmer is provided by the practice of "dockage" by the canner for damaged goods, or goods not reaching the stipulated quality or weight. "Dockage" is a reduction from the delivered weight to compensate for goods not up to standard. In this regard the canners are accused by growers of using this practice unfairly. The Commission however was " unable... to come to any conclusion as to whether dockages generally have been excessive or unfair.... " Nevertheless disputes between growers and canners in this question were frequent, and in consequence both are reported to have been satisfied when in 1934 inspectors of the Federal Department of Agriculture were stationed at canning factories to check each delivery of tomatoes for quality, grading and weight.

In its conclusions on this industry the Commission recommended that the machinery of the Natural Products Marketing Act should be utilized " for the purpose of concluding an arrangement that will ensure for the grower a more reasonable price for his product than he now receives. " Under the Act a number of marketing schemes affecting the wide range of vegetables and fruits were set up in the various Provinces in which they are important.

A third example of the power of the large industrial concern over the unorganised farmer is that of the tobacco industry. Once again in the words of the Report: " Possibly the clearest example of exploitation of the primary producer that came before us was that provided by the relationship between the tobacco manufacturers . and the tobacco grower during the period preceding 1934. This example also provides an excellent instance of the degree to which a monopolistic buyer can disturb the ordinary workings of economic law in the fixation of prices " In this industry one company accounts for 70 per cent. of the production and " has been in a position to manipulate raw material costs and to sell its product in a sheltered market at prices showing little variation from year to year. " The profits of the largest company during the depression years were large, dividends alone in these years amounting to $26.9 million, in an industry the total annual value of the production of which amounted to (less excise duties) $37 million in 1933 " In contrast, the growers, dealers, a majority of the manufactures, the wholesaler and the retailer have been faced with meagre profits, or in some cases, absolute losses " Previous to 1930, high tobacco prices had stimulated a large increase in production, which proved in the following years to be the " basic cause of distress among producers. " In 1930 the price reached its highest level of 32 cents, which resulted in 1931 in an increase in the planned area from 17,000 to 27,000 acres, production increasing from 12.4 to 24.5 million pounds. The situation in 1931 and 1932 is described in the Report as follows. " On the side of the producer there was lack of adequate information as to general market conditions and crop values, inability to adjust output to demand and lack of effective marketing organisation. In turn the manufacurer used the power that comes from monopolistic control to limit domestic competition, and high protective tariffs restricted the competition of manufactured goods from abroad. The combination of weakness on the part of the grower and power on the part of the buyer made it possible, if not easy, for the (largest company) to force prices to the lowest point in the 'zone of indeterminateness' to the consequent distress of the producer. "

The largest company began its buying operations in October 1931 with a maximum price of 30 cents the buyers being instructed to reach an average of 22 to 23 cents. In view of the large production the head offices of the company in New York held the opinion that prices should be about 25 per cent. below those of 1930. However, " a new company official was sent from Montreal to take charge of buying operations and as a result of his tactics, prices were driven ruthlessly down and both buyers and producers were demoralized. The final result of buying operations was that the crop was purchased at an average price of about 21 cents. as compared with 32 cents in 1930. "

" An examination of the crop inspection books of this Company clearly shows that deliberate advantage was taken of conditions to break the market. After the first week, the prices bore little relation to relative quality on the basis of the 30 cent top. Crops valued at 25 cents on that basis were bought for 5 to 18 cents. This was in sharp contrast to the buying policy in previous years, and was made possible by the fact that the growers were completely at the mercy of the buyers. "

In the hope apparently of recuperating their losses of 1931 the growers once more expanded their production, and the crop increased by 12.7 per cent. In the view of the Commission it was " quite apparent that advantage was again taken of conditions surrounding the marketing of the crop unduly to depress the price. Apprehension and subsequent panic was caused amongst the growers by, first, unnecessary delaying the opening of the market and later, by deliberately slowing down buying operations. " In fact, the Report notes that the largest company delayed the opening of the market by three weeks compared with the previous year though the crop matured two weeks earlier. In 1931 the company had made 87 per cent of its total purchases in the first two weeks. In 1932 it made only 53 per cent of its purchases in the corresponding period; " we are forced to the conclusion that the deliberate motive was to increase the anxiety of the growers By so doing, the growers would be in a submissive frame of mind which would facilitate the forcing of prices to the lowest possible level." Prices for this season averaged 20 per cent. below those of 1931.

In 1933 marketing was even slower, only 60 per cent. of the crop being sold after six weeks. The Ontario Government however gave financial assistance to the operations for packing and prices actually improved, also in part as a result of prospects of a shorter crop in the following season. " The panic conditions of the two previous years were absent from the 1933 markets. This was due to the strongly organized position of the growers backed by the financial support of the provincial government. In other words the relatively stronger position of the growers prevented the buyers from exploiting them. "

In 1934 general conditions contributed in improving the position of the tobacco grower, including a general economic improvement in Canada and a rise in tobacco prices in the United States. But " it is due also to the adoption of a price agreement between grower and manufacturer following upon the inauguration of a tobacco marketing scheme under the provisions of the Natural Products Marketing Act. "

We have already referred to the price of the semi-monopolistic agricultural implements industry and its effect on the output of implements and, consequently, on the farmer. A last example of the disadvantage of the farmer with which the Report deals is provided by the fertilizer industry. This industry, though small, is, by virtue of the nature of its produce and of its price policy, capable of exercising an influence on the farmer out of proportion to its size. This is again a highly concentrated industry, three firms representing 71 per cent. of the capital invested in the industry.

Farmers in Quebec and in the eastern part of the province of Ontario obtain their fertilizer at lower rates than farmers in the western part of Ontario. The difference in prices reflects the differences in price policies pursued by the fertilizer companies supplying those areas. In Quebec and Eastern Ontario the system is to charge the farmer on an f. o. b basis, so that prices actually vary according to the distance from the plant. In Western Ontario an association of fertilizer manufacturers, which controls the market in this area, quotes only prices on delivery to the farm, which do not differ for farmers at different distances from the plant. " The discrimination in this case is clear, as farmers near one of the fertilizer plants have to pay the same price as purchasers far away. " This policy is, in the eye of the Commission, disadvantageous to the agricultural economy. " A system of prices f. o. b. plant would thus mean that certain territories would be the economical market for each plant. Under the system of identical delivered prices, each fertilizer plant is free to seek business anywhere in that section of the Province in which the prices are controlled by the Association. That the prices, under such a policy, tend to be higher than they would have been under competitive conditions is clear from a comparison of Ontario prices with those in Quebec, where prices are quoted on an f. o. b. basis. "

" The system of delivered prices... means that the purchaser is compelled to buy with each unit of the commodity a fixed amount of often imaginary transportation. " The system also facilitates local price discrimination. " The purpose of such a discriminatory policy is generally to undercut a local producer in his own market and thus put him out of business or force him into a price agreeement. "

III. — **Conclusion.**

Thus the Report of the Royal Canadian Commission on Price Spreads provides many excellent examples, which we have amply quoted, of the extent to which the modern large scale monopolistic industrial organisation can exert undue influence over the relatively unorganised farmer, and of some of the methods with which this influence is exerted. One remedy lies in the organisation of the farmer, which has, as we have noted, already been adopted in Canada. (1) The Report indeed provides much evidence in support of those who argue that the chief function of marketing schemes as these have developed in recent years is not the exploitation of the consumer by the farmer but the defence of the farmer against the large scale buyer of his produce which will enable the restoration of conditions more approaching those of true competition; and to establish true competition to day, not laissez-faire but well thought out State action is called for The ultimate recommendation of the majority of the Commission was " not only the most complete maintenance or restoration of competition, where that is possible but also gradual, progressive and effective regulation in that growing field of business enterprise where monopoly or imperfect competition will continue inevitably to develop, and, if unregulated, will continue to exploit the primary producer, the wage earner, and the consumer in the shameful ways so often disclosed by the evidence before us " The report undoubtedly deserves being read in detail by all who are interested in the economic problems of agriculture

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(1) It may however be recalled that the Natural Products Marketing Act has recently been declared unconstitutional on appeal to the Judicial Committee of the Privy Council.

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PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General works

COMMISSION INTERNATIONALE D AGRICULTURE Annales Mai 1937 17 Paris C I A, 1937] 286 p

Sociology

HALLE P Situation de la paysannerie [Lagny Grevin 1937], 72 p (Union national des syndicats agricoles)

Economics

BALLANDE L Les ententes economiques internationales Etude monographique et statistique Paris Librairie technique & economique 1937 VI 374 p

PALESTINE ECONOMIC CORPORATION Tenth annual report Calendar year 1936 s l n d 1937 47 p

SOTOUDEH H L evolution economique de l Iran et ses problèmes Paris Librairie technique economique 1936 255 p

Legislation

ANNUAL SURVEY OF ENGLISH LAW 1936 London Sweet & Maxwell 1937 431 p [London School of Economics and Political Science (University of London) Department of law]

CARRET, J Manuel pratique de la reglementation concernant l Office du blé Avec table chronologique et répertoire alphabétique par matières des lois, décrets, arrêtés et circulaires Besançon, Jacques & Demontrond 1937 VIII, 255 p

PAYS-BAS MINISTERIE VAN FINANCIËN Boekwerk invoerrechten [La Haye, Rijksuitgeverij, 1936]
[Collection of laws and regulations relating to import duties]

Rural Economics.

NEUBAUER, W Zur Theorie und Praxis der Waldwertrechnung. Wien, Carl Gerold's Sohn, 1937, 292 p (Institut für Holzforschung an der Hochschule fur Bodenkultur in Wien).

TASCHENBUCH FÜR BUCHFÜHRUNG UND BERATUNG IN DER LANDWIRTSCHAFT 1937. Neunter Jg hrsg vom Reichsverband für das landwirtschaftliche Buchführungs-, Betreuungs- und Schatzungswesen e V [Leipzig, A Pries], 1937 217 p

Internal colonisation.

ARNOLD, K Die Landarbeiteransiedlung auf Pachtland unter besonderer Berücksichtigung der pommerschen Arbeits- und Arbeiterverhaltnisse Ein Beitrag zur Verbreitung des Heuerlingswesens. Berlin, Reichsnährstand Verlags- Ges [1936] 120 p (Beiträge zum Bauern- und Bodenrecht, hrsg von Wilhelm Saure, Bd 5).

LENOIR, R Les concessions foncières en Afrique Occidentale Française & Equatoriale Paris, Librairie technique & économique, 1937. 156 p

STREMME, H. und E. OSTENDORFF Die bäuerliche Siedlungskapazität des Deutschen Reiches Gotha, J Perthes, 1937 (Ergänzungsheft Nr 228 zu « Petermanns Mitteilungen »)

Co-operation.

REICHSVERBAND DER DEUTSCHEN LANDWIRTSCHAFTLICHEN GENOSSENSCHAFTEN-RAIFFEISEN, E V Jahrbuch 7 Jg 1936 [Neuwied am Rhein, Genossenschafts druckerei Raffeisen], 1937 148 p

VERBAND RHEINISCHER LANDWIRTSCHAFTLICHER GENOSSENSCHAFTEN E V KOLN Jahresbericht 1932, 1935 Köln, Vereinsdruckerei, 1935 1936] 2 vols

Industry.

SUISSE COMMISSION D'ÉTUDE DES PRIX. Über die Verhältnisse in der schweizerischen Teigwarenindustrie Bern 1937 IV, 55 p. (Veroffentlichung Nr 15 der Preisbildungskommission des Eidg Volkswirtschaftsdepartementes Sonderheft 25 der « Volkswirtschaft », hrsg vom Eidg Volkswirtschaftsdepartement).

TREMELLONI, R L'industria tessile italiana. Come è sorta, e come è oggi Torino, G Einaudi, 1937. 294 p (Problemi contemporanei, 13)

ZENTRALVEREINIGUNG DER SLOVAKISCHEN INDUSTRIE. Die slovakische Industrie im Jahre 1936 Bratislava, Universum Aktiendruckerei, 1937, 175 p

Various.

BIBLIOGRAFIA DELL'IMPERO FASCISTA (Colonie e possedimenti). Opere possedute dalla Biblioteca della Camera Fascista al primo annuale dell'Impero Roma, [Tipografia della Camera dei Deputati], 1937 VIII + 200 p.

INSTITUTE OF WORLD AFFAIRS Proceedings, 14th Session Mission Inn, Riverside, California. December 13-18, 1936. Los Angeles, The University of Southern California, 1937. 223 p.

COMITÉ DES TRAVAUX HISTORIQUES ET SCIENTIFIQUES Comptes rendus du Congres des sociétés savantes de Paris et des départements tenu à Montpellier en 1936 Paris, Gauthier-Villars, 1936, 308 p.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

DISTRIBUTION COSTS AND CONSUMER'S PRICES (1)

CONTENTS: Foreword. — I. Introduction — II. The normal structure of distribution costs. — III. Factors leading to excessive distribution costs and margins — IV. Methods of reducing distribution costs

Foreword.

In October 1936 the Institute was invited by the Mixed Committee on Nutrition at Geneva to collect and analyse material referring to the margin between the prices received by the farmers and those paid by the consumer of more important staple foodstuffs. The Institute commenced this enquiry in January 1937 and the Report (2), which is being published in autumn 1937, contains summaries of important studies on this subject undertaken at various times in many countries. In the report these studies are preceded by an attempt to analyse the nature and size of the margin, the trends thereof, and the possibilities of reducing consumers' prices by action tending to reduce the margin. Since the Report may have a wide interest not only to those interested in the problem of nutrition but also to all interested in agricultural economics it is thought that the following adaptation of the first part may have a special interest for readers of this bulletin.

I. — Introduction.

Even a casual glance at the studies in the first part of the Report is sufficient to reveal that, despite the importance of the subject and the interest which it constantly arouses, very few settled conclusions or principles have as yet been elaborated. However, the placing of the results of many studies made in different countries side by side may enable some contribution to be made to this end. The studies show indeed a great diversity as to the period to which they refer, the scope, the method of approach, the commodities treated, the degree to which analytical or statistical treatment prevails, as well as to the greater or less degree of detail. It is therefore evidently impossible to use them to provide direct comparison or contrasts between the different countries. Indeed, direct international comparisons cannot be expected to yield very fruitful results capable, for example, of direct application for the purpose of lowering distribution costs. In each country distribution takes its own particular form. The variations in the distances goods are transported, in transport rates, in the type and cost of labour employed, in the degree of preparation of the goods before they reach the consumer—to mention only a few characteristic differences—are so large as to preclude any direct comparison of value. What is possible however on the basis of an international survey of the type made in the Report is the pooling of common principles and the examination of diversities from which it may be possible to obtain a better general understanding of the nature and importance of distribution costs than from a study of the narrower field of a single country. It is therefore here attempted, on the basis of a perusal of the studies in the Report, to bring out certain general principles relating to the "distributive margin," reflecting the experience of many countries, which tend to be inherent in the modern systems of the distribution of consumption goods—or more particularly, of foodstuffs. The sections below deal firstly with the normal structure of distribution costs, secondly, with the question of the degree to which, and the reasons for which such costs may be excessive, and thirdly, the possibilities of reducing them, and thereby, to some degree, the price of foodstuffs to the consumer.

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(1) In this article, as in the Report itself, the terms " distribution ", " distribution costs, or margins " refer in general to all those processes and the costs thereof, through which a given commodity passes on its way from primary producer to consumer. " Distribution " includes therefore not only transport and selling but also the various forms of processing. In a few cases the terms are used in a more restricted sense, excluding processing. It should however always be clear from the text in which sense the terms are adopted.

(2) " Investigations into the Margin Between Producer's and Consumer's Prices of Certain Foodstuffs ".

II. — The normal structure of distribution costs.

Whatever the method of the organisation of the distribution of goods from the primary producer to the consumer, the process of distribution necessarily involves certain costs which, like the costs of production, must in the long run be met by the consumer The goods must be collected at the farm, transported and delivered to a selling establishment, and sold These represent the minimum processes necessary in the distribution of goods from rural to urban areas. Many goods however require preparation or processing of a more or less complicated kind, as, for example, grain for bread, milk for butter and cheese, the meat carcase for the consumer's joint. In most cases, must be added to these primary distribution costs a normal proportion of waste, due to deterioration in transport or normal perishability and loss of freshness, as for example, in the case of vegetables and some fruits, poultry and eggs, and dairy produce and meat.

Different methods of the organisation of distribution bring in further sets of costs, not, of course, necessarily additional since the particular method of organisation may actually be a means of reducing the totality of distribution costs to a minimum. In the world today there are many forms of organisation, but broadly one may distinguish three main forms, namely the method of open marketing, in which goods pass through the hands of whole chains of independent trades, the co-operative form and the large scale private distributing organisation which is responsible for the whole process of distribution from the farm—which it may even control—to the consumer. Across these main forms may cut numerous other types which have at the various stages of the process something in common with all three. The first type is the commonest of all three, and here again there are many variations, the number of intermediary agents and markets within the same countries, between countries and among the different commodities diverging considerably. The co-operative form may be represented by a single co-operative organisation which engages in the whole process of distribution, or by co-operative organisation on the part of the consumers. No form necessarily excludes competition nor, on the other hand, monopoly or monopolistic influences at some stage of the distributive process Without at the moment going into the question of the efficiency of the various types of organisation, it is clear that the structure of distribution costs will vary very much with the type of organisation which prevails Where goods pass the hands of several intermediaries various costs will be incurred which are absent in a unitary form of distribution

In times of agricultural depression, marked by severe declines in the prices of agricultural products, complaints invariably arise both from the side of the producer and that of the consumer, that the prices of foodstuffs to the consumers fail to reflect the changes in the prices paid to the farmer Both farmer and consumer lay the blame at the distributor's door and proclaim the necessity for the elimination of the "middleman" Without examining here the justification of the complaint, which rests evidently more on the assumption that the organisation of distribution is inefficient than on its being unnecessary, it is appropriate here to note that, in the light of the foregoing, consumers' prices cannot automatically and to the same degree follow producers' or farm prices Producers' prices and the costs of distribution may be, and very often are, completely independent of each other Consumers' prices over the long period reflect both producers' prices and distribution costs In consequence the higher the proportion of the distribution costs in total costs, the less can consumers' prices reflect farm prices. Thus if distribution costs represent 50 per cent. of the consumers' price a fall in farm prices of 20 per cent would result—assuming no change in distribution costs—in a fall in consumers' prices of only 10 per cent. On the other hand, if distribution costs represented only 10 per cent. of the producers' price the consumers' price would fall by 18 per cent In actual practice however only a part of distribution costs remains fixed for a long period; this applies particularly to rents,- interest, rates, taxes, freights, and the like. A further part will tend to vary with changes in the quantity of produce dealt with as well as with progress in method or in the nature of the service rendered to the consumer. In consequence, quite apart from the question of middleman's profits, a fall in the producers' price will not be followed by an equal absolute fall in the consumers' price, but more probably a lesser fall—though a greater fall cannot be excluded. Over a short period, further, consumers' prices reflect the prevailing conditions of supply and demand and are quite independent of both production and distribution costs. There is thus no rule of thumb method to determine whether consumption prices respond adequately to the primary producers' prices. A proper judgement in this respect always requires a detailed investigation into the flexibility of the various distribution costs, a task which—as the study of the Report would show—is none too easy.

A fact which emerges from all the studies in the Report is that distribution costs represent a substantial proportion of the final consumption price of foodstuffs. In the United States they represented 58 per cent. in 1935; in 1932, at the depth of the depression, they reached 67 per cent. In Germany in 1930-31 total processing and distribution costs (calculated however on a different basis) represented 40 per cent. of the value of retail trade in the principal foodstuffs. Though similar figures cannot be quoted for the other countries it is evident from the study of particular commodities that the proportion is generally high. Thus, in Canada, in 1933, the margin between wheat and bread prices represented 82 per cent. of the price of bread. In the United Kingdom, as far back as 1925, nearly 60 per cent. of the price of bread was formed by the expenses other than the costs of flour. In France in 1932 the farm to retail spread' on meat could be estimated at nearly 50 per cent. of the retail prices. Even the spread on commodities such as vegetables, which do not require processing, appears to be strikingly high. Thus, in Germany in 1930-31, of the total retail, value, about 51 per cent. was accounted for by the intermediate costs. In the cases of eggs and fruit 40 per cent. of the retail value was made up by intermediate costs. In the United States where, as may be noted above, the proportion of intermediate costs are on the average much higher, the spread stood in 1935 at about 80 per cent. in the cases of commodities such as cabbage, carrots and celery, and often at about 70 per cent. in other cases of fresh vegetables. The reason for these high proportions of intermediate costs in the case of these unprocessed goods appears to lie in the fact that owing to their relatively low absolute value it is necessary for traders and dealers to obtain high margins of gross profit in order to make any gain whatsoever. Thus in the United Kingdom the percentage gross profit on vegetables reached in high class stores a figure as high as 331 per cent. in one case. Even in lower class shops the percentage in the case of the some commodity reached 187 per cent. Further, in the case of vegetables a high margin appears inevitable in order to cover losses on waste goods which have lost their freshness and have become unsaleable.

Distribution costs are not only high but appear, over the long period, to be increasing. In general, compared with before the war, distributive margins are higher not only absolutely—an absolute increase can hardly be a matter of surprise in view of the general increase in values compared with before the war—but relatively to production costs. In other words, distribution costs represent a higher proportion of the final consumers' price. From the studies in the Report this is best borne out statistically in the case of the United States. In 1913 and 1914 the margin between the value at the farm and the retail value of 58 foods represented 47 per cent. of the retail value. The proportion was at its lowest at 1917, when it reached 40 per cent. Since then it has fluctuated but after 1929 it never fell below 50 per cent., reaching, as was previously noted, the high point of 67 per cent. in 1932. The same phenomenon is shown in regard to the individual commodities. Thus, in the case of beef, the proportion rose from 36 per cent. in 1930, to 63 per cent. in 1932-34, falling only in 1935 to 55 per cent. The increase in the case of pork products was even greater, the figures for the same years being 20, 27, 36, 58 (in 1932) and 41. Between 1913 and 1935 the proportion in dairy products rose from 45 to 55 per cent.; in white bread from 77 to 83 per cent.; in potatoes from 41 to 58 per cent.

Figures for the other countries, though not so complete, indicate the same tendency. In France whereas the farm price of meat increased between 1912-1914 and 1932 by 275 per cent. the retail price increased by 455 per cent. In Berlin the price of bread increased between 1913 and the first half of 1929 from 28.5 pfennigs per kilogramme to 40.8 pfennigs, an increase of about 43 per cent. whilst the cost of grain only increased from 14.3 to 18.5 pfennigs or about 30 per cent. In Canada between 1926 and 1933 the wheat-bread spread increased from 67 to 82 per cent. of the bread price. This tendency towards a relative increase in distributive margins was indeed in part responsible for many of the enquiries in the post-war years into food prices.

From some of the studies it is possible to gain an idea of the relative importance of the various costs incurred in the different stages of distribution in the various countries, as well as the changes and tendencies therein. The expenses in the production of bread may roughly be divided into four classes—the cost of flour, the cost of secondary ingredients, bakery costs, (including profits), and distributive charges proper. In the United Kingdom in 1923 the cost of flour represented about 63 per cent. of the total costs, the other ingredients 5 per cent., baking costs 15 per cent., and the distributive costs about 17 per cent. As the table given in the survey of the Linlithgow Committee's report shows, compared with before the war important changes had occurred, particularly the increase in distributive costs proper, which in 1914 had represented only about 11 per cent. (1).

In Germany in 1929, the cost of flour represented 57 per cent. of the price of bread of the small Berlin baker, total manufacturing costs 19 per cent., and distributive charges proper 113 per cent. In the United States in 1935-36 the bakers' margin appeared to be much higher representing 71 per cent. of the retail price. Before the agricultural crisis it represented 66 per cent., but, going still further back, in 1919-20 it represented only about 44 per cent. In all countries the wheat-flour spread is much less than the flour-bread spread.

Turning to meat, a table in the section of the Report on France indicates that the wholesale-retail price margin is much larger than the farm-wholesale margin. Thus in 1932, the price at the farm was estimated at 5·74 francs per kg., the wholesale price 6.95 francs and the retail price 11.27, the two spreads representing respectively 11 and 39 per cent. of the retail price. This is also indicated by the example given of the spread on beef in England; in this case the retailer's gross profit represented somewhat more than one fifth of the farmer's net return, whilst the total margin from farmer to wholesale butcher, which included also the value of the hide and offals, represented only somewhat over one tenth Again, the figures given in the study of the margins in the vegetable trade in Holland indicate that, here too, the greater part of the distribution costs are incurred at the retail end. Milk indeed appears to be the most important exception to this rule, for the main charges incurred during its journey from producer to consumer are incurred before the retail stage, namely, in sterilising and bottling, functions usually performed by the wholesale distributors.

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(1) It may here be noted that though these figures refer to a period many years back they have not lost their general value. In November 1925 the Food Council set up in the United Kingdom in that year recommended a scale of bread prices in relation to flour prices, which was slightly modified in 1930 and 1932 The original scale allowed a price of bread of 9 *d.* per loaf when flour prices were above 40 *s.* per sack and less than 44 *s.* In the Linlithgow Committee's example above, the price of bread averaged 8 95 *d.* and that of flour 42*s.* 1 *d.* In 1932 the revised scale, necessitated by changes such as the decline in consumption, the increase in paper-wrapped bread, etc. showed a price of 9 *d.* per loaf when flour was above 39 *s.* and not exceeding 43 *s.*

Individual items in the costs sheet naturally vary very considerably, not only as between different countries, but even in the same locality of a given town. In some bakeries, for example, modern machinery is employed, tending to reduce the proportion of labour costs; in others, hand methods prevail. In all trades the service offered by different establishments varies considerably. Butter may be sold wrapped or unwrapped, milk in bottles or in the housewife's jug. Some retailers may deliver at the door, others sell from stalls in the market place. The preparation of goods may be carried out centrally by a multiple store organisation or at the single retail shop. All these differences, which can be multiplied almost indefinitely evidently, preclude any general statement as to the importance of individual cost items. Nevertheless, it may be noted that the modern tendency—particularly marked in North America but not absent elsewhere—towards a large scale organisation of retail trade, whether in the form of department or multiple stores and consumers' co-operatives, tended to increase the importance of some classes of costs and diminished that of others. The comparison made in the section of the Report referring to Germany between the bread cost structures of a large factory and of a small independent baker is instructive in this regard. Whereas the large baker has a definite advantage in production costs the small baker has an important advantage in distribution costs proper. On the other hand it is also noted in the same connection that a co-operative dealing in bread among its other wares has a net advantage in distribution costs proper owing to the fact that total costs are distributed over many commodities.

One of the reasons why distribution costs proper tend to form indeed under modern conditions a higher proportion of total costs lies not only in the costs of transport and in the higher degree of service but also in the extended use of advertising which has accompanied the growth of the large organisation. And this again has been encouraged by the development of patented goods. Though the large organisation has developed rapidly in the post-war years the fact that it has brought with it many extra costs in the actual selling of the goods may actually act as a check on further expansion. This indeed appears to be the view held by the Canadian Royal Commission on price spreads, from whose report extracts are given in the section on Canada.

Again, as illustrated particularly in the study of Canadian trade, the large organisation tends to have an advantage in the purchase of the raw material, whether wheat for bread or fruit and vegetables for canning. In some cases large buyers are given concessions as a matter of course, in others they force them from the producers (1); and often, the reorganisation of the marketing of agricultural products under State intervention produces a similar effect.

In concluding this section on the normal structure of distribution costs we may refer to the widely held view that the net profits of the trader are responsible for an important proportion of total distribution costs. Without here going into the theoretical question as to whether such profits are the cause or the effect of high consumers' prices, or whether they are excessive, we may note some of the statistical conclusions with regard to profits made by the authorities studied in the Report. It should be noted that such profits are subject to considerable fluctuations. The practice adopted by many trading associations of maintaining more or less fixed retail prices over considerable periods often leads to high profits when raw material prices are falling, and low profits, or even losses, when they are rising. Secondly, calculations of net profits are particularly difficult in the case of the small retail trader where often they may represent nothing but his own salary, barely sufficient to enable him to meet his ordinary living requirements. This being said, we may note that in France the retailer's profit on meat was calculated, in September 1932, at 8.9 per cent. of the retail price. In bread-making in Berlin in 1929 the profits of the independent bakers were calculated at 9.1 per cent. of the retail price. The Royal Commission on Food Prices in the United Kingdom gave baking profits in 1925 as 8 per cent. of the retail price. Apart from such profits must be added those of the intermediaries in other stages of the distribution process, including not only those of the wholesalers, but in many cases of other intermediaries according to the nature of the particular market, such as the cattle dealer and the slaughterman in the meat, the commission salesman as in the vegetable trade in the United Kingdom. According to the Linlithgow Committee's investigations the vegetable commission salesman obtained 10 per cent. of the selling price, whilst the provincial wholesaler's net profits averaged 1.8 per cent. of their sales. In France in the meat trade the gross profit of the cattle dealer plus the slaughterman's profit plus commission and market charges—a large proportion of which are net profits—amounted to 3.9 per cent. of the retail price. These few examples are obviously insufficient to establish the statistical importance of the intermediaries' profits, nevertheless they suggest that in some cases at least net profits form an appreciable proportion of retail prices.

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(1) See also: The Canadian Royal Commission on Price Spreads. *Monthly Bulletin of Agricultural Economics and Sociology*. International Institute of Agriculture. Rome, July 1937.

III. — Factors leading to excessive distribution costs and margins.

From the foregoing section it should not be difficult to see that, under modern conditions, a large proportion of consumers' expenditure necessarily goes to meet not only the expenses of production but also of distribution. Neither this fact, nor the fact that distribution costs tend to increase relatively to production costs, represent in themselves a condemnation of present day economic organisation. Indeed, it may be suggested that such facts are the normal consequence of economic progress, signified by reduced production costs as a result of improved methods and accumulation of capital. In some lines of foodstuffs particularly, the growth of distribution costs in relation to production costs arises as a result of the inelasticity of demand. On a market which does not expand, improved technique evidently leads to the diminution of total expenditure of resources on production. Another mark of economic progress is the improvement in the preparation of goods for the consumer—the pasteurisation and bottling of milk, the wrapping of butter and bread, the preservation of fruit, the presentation in attractive cartons. Similarly improvements in transport facilities lead to the shifting of production areas away from consumption areas and an increase in the distances over which goods are brought from producer to consumer. Again, the growth of urban agglomerations — made possible indeed by the improvement of all forms of transport—leads both to large scale centralised distribution and such practices as delivery of goods at the consumer's door. The fact therefore that society uses more of its resources than before in the distribution of goods may indicate rather an obedience to a normal economic law than the neglect thereof.

On the other hand, however, it is clear that factors may arise which tend to exaggerate the proportion of social resources devoted to distribution both absolutely and relatively, and the studies in Part II often do indicate that in particular cases distribution costs tend to be excessive, not justified either by economic law or by the economic interests of the community. Thus the Linlithgow Committee reported on the basis of its detailed investigations, that " the spread between producers' and consumers' prices is unjustifiably wide. Taken as a whole distribution costs are a far heavier burden than society will permanently consent to bear ". In Germany in 1929 investigations into a number of food markets revealed that retail prices were often higher than justified by costs and that in some cases the faulty organisation of the market made the distribution costs themselves excessive. In the Netherlands a study of the market for market garden produce suggested equally that distribution costs were excessive. In several of the studies in the Report the analysis of the marketing organisation often leads to the conclusion that improvements leading to a reduction of distribution costs are possible. Thus we may cite in example the report on the reorganisation of milk marketing in the United Kingdom, the study of monopolistic organisations in Canada, and of the agreements among bakers and millers in Switzerland. Whilst referring the reader to the Report for the particular causes leading to such conclusions we may consider here in general terms the type of factors leading to excessive distributive margins and costs.

We might perhaps begin with a warning against the view that a given distributive margin is justified, *i. e.*, not excessive, if it is equal to all the costs incurred in the process of distribution. Because such and such costs have been increased, therefore, (it is argued) such and such a margin is justified. This is indeed a view frequently adopted by distributors or distributors' organisations in presenting their case to public authorities for an increase in prices; and usually if the said authority is satisfied with the evidence as to costs, the request is granted. Yet, on some reflection, it should be clear that this view contains an inversion of cause and effect. On a competitive market a producer or distributor must sell his wares at the market price, *whatever his costs.* If the price over a long period does not cover his costs, then it is true he will be obliged to abandon the business. If, on the contrary, it exceeds his costs over a long period, he will find it profitable to expand. In other words, under competitive conditions, it is the price which determines whether the costs are justified, and not *vice versa.* In consequence, though it is necessary for solvency that a business undertaking covers its costs, it is not possible to judge whether prices or margins are excessive or other wise by summing up all the various cost items and noting that prices are greater than this total. Further, even should the total of costs equal the price this too is evidently no indication of the lack of excessiveness or otherwise of the price, or, in our problem, of price margins.

The true criterion of excessive distributive margins may in fact be sought more directly. Margins may be regarded as excessive from a social economic point of view whenever they include cost items which are unnecessary for the performance of the given service *to the degree made appropriate by the relative demand and by the available resources.*

And this irrespective of whether the demand is that determined by consumers' preferences or by another criterion.

It should be clear that whether costs and margins are excessive cannot be established by the study of the statistics in the Report as much as by a consideration of the general principles relating to the establishment of the costs and margins resultant from the various investigations. Approached in this way however the Report offers many reasons for which distributive margins may be excessive.

It is an elementary economic principle that in a perfectly competitive equilibrium prices would equal costs. It is easy to see that the conditions of a perfectly competitive market are far from obtaining in the distributive process as indeed in all other parts of the economic system. The market is indeed imperfect from the consumer's side as from the producer's side. It is a notable fact, and one brought out particularly clearly in the study on the bread market in Germany, that prices of foodstuffs of the same type and quality vary considerably not only as between different towns but even within the same locality of a given town. Very often the consumer does not know of these differences; in other words, he does not, before making his purchase, explore the market in the way the retailer does on the wholesale market. Very often he prefers to deal at one shop rather than another. From the consumer's side therefore the levelling influence of the market tends in many cases to be absent. It is difficult to estimate the effect of this on consumer's prices but attention may be drawn to the conclusion in the study of German conditions that an action designed to eliminate such price differences would reduce the average level of prices by at least 10 per cent. In that study it was argued that local price differences reflected less differences in costs than differences in the retailer's earnings. And in the light of what has been said above on the nature of costs it is evident that differences in costs on a properly competitive market do not justify differences in prices. The remedy however lies chiefly in the hands of the consumer.

The imperfections of the market within the distributive process itself are often of equal importance or even greater importance than the imperfections on the consumer's side. Perhaps one of the most notable features of the collection of studies presented in the Report is the frequency of references to the possession of monopolistic or quasi-monopolistic powers on the part of distributors or their organisations. Owing to the diversity of periods to which the studies refer we cannot indeed determine how far these powers prevail to-day. In all probability, however, they are stronger to-day than in the earlier periods with which many of the reports deal. The most extreme examples are perhaps offered by the report of the Canadian Royal Commission on price spreads, from which it appears that in several food industries there are large corporations which are able more or less completely to dominate the market, to the consequent disadvantage both of the primary producer and of the consumer. In almost all countries, moreover, the majority of traders form associations for their common benefit. Not all of these exert or are able to exert monopolistic influence. On the other hand, many of them do prescribe and regulate the prices at which members may sell their goods, and employ effective sanctions for their enforcement. The prices under such agreements are designed to enable the traders to cover their costs and gain a " reasonable " profit. Another aim is often to prevent fluctuations in raw material prices bringing about similar fluctuations in the price of the final product; in order to prevent irregular and disturbed trade. It is perhaps significant in this regard that in a number of German towns in which the policy of a steady bread price was pursued the average level of prices tended to be higher than in towns in which this policy was not pursued.

These almost " natural " imperfections of the market, so old and so general as to be taken almost for granted, are today supplemented in nearly every country by the effects of State economic policy. Often the regulation of agricultural prices has necessitated the regulation of both retail food prices and the distributive margins. In other cases—as for example in the United Kingdom—the distributive margin has tended to increase. The report of the Food Council in that country in 1936 stated that: " Consumers have legitimate cause for complaint in so far as the Marketing Schemes, which were intended to give primary producers the power to organise and co-ordinate the sale of their produce, confer in addition powers of intervention in the subsequent stages of treatment and distribution which are not the province of producers and of which they cannot be expected to have expert knowledge. The consequent tendency of producers is to seek the co-operation of the intermediaries, who do know the trade, by securing to them minimum margins, which are frequently exceeded and which are not based upon ascertained costs for the specific services to be rendered ". In the study of distributive spreads in Austria it is stated that " In the case of those commodities which are subject to State regulation, as are dairy products... the margin between wholesale prices and producer's price may be wide. " (1). It does seem true that with the growth of State regulation in economic affairs the distributive process has ceased to be affected only, or evenly mainly, by the power of the competitive market.

The growth of the large scale distributive organisation in post-war years is, no doubt, in large part due to the fact that it is able to secure economies of various kinds which are not open to the smaller unit, and consequently sell at lower prices. The Canadian report also affords instances too of this principle. On the other hand, if the growth is such as to give the large organisation a dominant influence on the market, reducing the influence of competition, then several factors may arise which tend to raise total costs (and, subsequently, prices) and which do not at the same time facilitate the restoration of competition. In several instances the phenomena of " overcapitalisation " and " overcapacity " are cited as being responsible for unnecessarily high prices It should not require a special knowledge of economic theory to see that such phenomena can only occur in the absence of effective competition. Where competition is perfect the capitalisation and overhead costs cannot determine the price of the produce The price will be determined on the market by supply and demand Out of a state of equilibrium the price resulting may be either higher or lower than that necessary to cover the capital charges —interest, amortisation, etc —of a given enterprise. A firm possessing predominance on the market is however able, and does, fix the price at such a level as to enable it to meet as great a proportion as possible of the capital charges. In such a case where demand is declining, as for some foods consequent upon changes in consumers' preferences and notions of diet, the decline is accompanied, not, as under competition by a fall in price, but by a fall in output, whilst price may remain stable or fall only slightly. Under competition " overcapitalisation " and " overcapacity " are disadvantageous only to the producer; under monopoly they often operate to the disadvantage of the consumer.

Where competition is limited, certain business practices are sometimes adopted which are not in general to the advantage of the consumer Though the use of trade marks and patents is naturally more common in respect to industrial products than in respect to agricultural products, even in the latter case it facilitates the practice of re-sale price maintenance. Where goods are, for example, canned or prepared in a special way and given a trade name by a single large concern, that concern may sell them to retailers for re-sale at prices fixed by the concern—penalities being applied to retailers who go below such prices. Thus even though retail trade be not monopolised, the large scale wholesaler is able to exert a monopolistic influence on the retail price. In such cases too, the trade name is often the only special feature which distinguishes the commodities from others which otherwise would be its rivals.

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(1) *Vide* " The spread between producers and consumers' prices of certain Foodstuffs in Austria ". *Monthly Bulletin of Agricultural Economics and Sociology*. Rome, June 1937

Another related factor which increases the total expenditure on distribution is the indulgence in costly advertising campaigns—one of the reasons why the proportion of selling costs to total distribution costs has so often risen. Though it may be conceded that costly advertising campaigns of the " eat more fish " variety may bring not only a gain to the fish producers and distributors but also to the consumer, who is thus made aware of the deficiencies of his diet, it is more doubtful whether costly campaigns recommending the consumer to eat Brown's fish rather than Jones's fish and *vice versa* works to the ultimate benefit either of Brown and Jones or to the consumer. Where several large firms engaged in the trade in the same product year after year expend large sums in advertising their respective products it is arguable that the total market does not expand in proportion to the expenditure on advertising, the costs of which are ultimately born by the consumer. Such tendencies are perhaps most evident in North America, but are by no means entirely absent from European countries.

Advertising of the second type noted above is a feature not of simple monopoly so much as of the intensified competition between a small number of large enterprises. In the Report criticism is often levied however by high authorities not only against this but against the intensified competition of a large number of small enterprises. Such criticisms are directed particularly against some types of organisations of retail distribution. The main defect of such organisations is that there is an extraordinary amount of overlapping Particular streets may be served by several retailers situated at varying distances with the consequence that expenses of carriage, of labour etc. are duplicated quite unnecessarily This may be justified in those cases where each retailer sells a special type or quality of good, but it can hardly be so where the commodity is of a staple type- -for example milk supplied by the same co-operative or wholesale distributor. An agreement among retailers to divide a given area amongst themselves--not, of course, supplemented by an agreement to maintain prices—could not fail in many cases substantially to reduce costs. " It is obvious ", states the Report of the Milk Reorganisation Commission for Great Britain " that the costs of delivery must be greater when a large number of roundsmen are serving the same street; and the costs of equipment, premises and labour and of balancing supplies must all be higher with, say, ten 15 gallon rounds than with one 150 gallon round. We have been furnished..... with particulars for a number of towns from which it appears that large numbers of retailers must have rounds of considerably less than 20 gallons and some of them rounds of 10 gallons or less. .. ". It is hardly necessary to add that similar defects are also to be found in other stages of the distribution process.

Not very much information is offered in Report concerning factors such as indirect taxes which are, from the point of view of distribution alone, an unnecessary burden. In almost all countries today many foodstuffs are augmented in price in the distributive process through the imposition of sales taxes, excise duties and the like. Some taxes indeed, such as dealer's licences, do not affect prices, in that they are fixed charges paid out of income. Sales taxes on the other hand are automatically added to the price of the commodity. In Austria the sugar turnover tax represents 6.56 per cent. of the retail price. In Germany in 1930-31 the consumption tax revenue represented 2.2 per cent. of the total expenditure on foodstuffs and import duties 1.8 per cent. Such taxes are imposed for reasons of financial or agricultural policy. Whether such reasons are sufficient or not is clearly outside the scope of the present study, in which, however, the existence of such taxes must be noted.

Likewise the data contained in the report on transport rates and costs is not sufficient to enable one to judge the degree to which these are excessive. In general terms however it may be said that their excessiveness or otherwise depends primarily on the adaptablility of the organisation of road and rail services to the individual needs of the particular trade, which evidently vary, for example, as between cattle, fruit or fish. The principle widely adopted by railways of charging "what the traffic will bear" is an illustration of the way in which rates may be excessive on high value goods which cost no more to transport than low value goods. On the other hand transport rates which are rigid and do not respond to seasonal fluctuations may often diminish the efficiency of marketing. The inadequate use of carriage space also increases the unit expenditure on transport.

In the light of the foregoing it may be concluded that through it is not possible to make any statement as to the proportion of distribution costs which are regarded as excessive it is possible on the other hand to assert that there are several reasons to suppose that such costs are not as low as they might be. Bearing in mind that under competitive conditions a lowering of distribution costs will in the long run result in lower consumer's prices, we may, in the next section, briefly survey some of the methods to bring a reduction in costs about.

IV. — Methods of reducing distribution costs.

The analysis in the foregoing section of some factors which tend to make distribution costs excessive almost automatically suggests some of the directions in which action may be taken to lower them. In most countries at different times certain efforts have been made to this end by consumers' organisations, by central and local governmental authorities, by the distributors and the producers—in fact, all the parties concerned—either separately or by co-operation amongst themselves. Some methods do not involve any changes in the organisation of distribution, but consist in removing the imperfections of the market—from both the consumers' and the producers' side which were indicated above as partly responsible for excessive costs. Others relate to the improvement of individual services such as transport and marketing accommodation; and still others involve important changes in the organisation of distribution. Their importance and success naturally vary considerably between countries according to the general state of industrial and agricultural development.

Among the efforts made to reduce retail price, not involving changes in the organisation of distribution, may be noted the "fair price" campaigns—one example of which is described in the section in the Report relating to Germany. Investigations into various markets had led to the discovery that local variations ascertained in retail prices of similar quality goods were not attributable to differences in the objective conditions—in costs of labour, or transport or rents. One of the main reasons, instead, was the consumer's lack of knowledge of the market—due either to his preference for a particular retailer or to his desire to shop at the nearest dealer. In consequence it was thought that if a responsible body were to examine the conditions of the market and determine "fair" or "objective" prices and then publish and publicise these by means of the daily press and the wireless, the consumer would be in a better position to judge whether he was paying reasonable prices or not, whilst the retailer who was banking upon his customer's ignorance of the market to charge excessive prices would find a change in policy appropriate. Such a campaign was begun in Germany at the end of 1929 and very shortly had notable effects in reducing the average level of retail food prices and, *ipso facto*, the wholesale-retail margin. It may be suggested therefore that the first imperfection of the market noted in the preceding section need not be regarded as irremoveable. However, it is well to point out that in general the retailers who charge excessive prices owing to the customers' lack of knowledge are not those who sell in the poorest quarters of a town, a lowering of prices by this method would not necessarily appreciably benefit the undernourished sections of the population.

The problem raised by the second type of imperfection—that of controlling monopoly or monopolistic tendencies in the food trades—is obviously not one that can be treated fully here. We may note however that though in most countries the main forms of monopoly are today tolerated by law, attempts are constantly made—with varying success—to prevent their exploiting their advantages to the full. The chief method—apart from rendering certain practices illegal—to which we may here refer is the setting up of public or semi-public bodies to maintain a watch over the price policies of distributors or distributors' organisations for the consuming public's benefit. In most cases such bodies do not have executive powers but merely the power of reporting to and advising the relevant Ministry as to action which is desirable from the consumers' standpoint. In the United Kingdom *e. g.* the Food Council was set up in 1925 "To investigate and from time to time to report to the President of the Board of Trade on such questions as by reasons of complaints from persons interested or otherwise appear to the Council to require investigation in the interests of consumers or traders, or are referred to them by the President of the Board of Trade, relating to the supply or price of articles of food of general consumption..." Up to March 1937 it had made 25 reports, referring to bread, tea, milk, market garden produce and meat. At various times when distributors associations have desired to raise their prices the Council has itself investigated the justification of the change proposed. It is of interest to note also that the Agricultural Marketing Acts which have marked a new epoch in British agricultural policy also provided for the setting up of Consumers' Committees with similar functions. It is however evident that the success of all such bodies depends both on the powers which are given to them and on the consideration they receive at the hands of the final State authorities.

We have seen that the criticism is often made that the increased services rendered to the consumer by the retailer have tended to increase distribution costs considerably since the war; it may asked therefore whether and in what directions it is possible to eliminate superfluous services. There are indeed many difficulties in this connection, not the least being the necessity for co-operation among retailers. Granted this co-operation however—which should not be impossible of attainment—the retailer might at least restrict two services, namely the delivery of the goods at the consumers' domicile and the granting of credit. Both of these services to-day are rendered in general indiscriminately to all customers who wish to take advantage of them. In general however not all the customers avail themselves of them; nevertheless since the general practice is to charge the same prices to credit customers and customers who have their purchases sent home, the cash customers and those who carry the goods home themselves are obliged to contribute to the costs of the services rendered to others. It is clear therefore that at least one important step in reducing such services would be to charge for them There are indeed psychological difficulties in putting such a system into practice. Whether they can not be overcome by appropriate public educational campaigns need not be discussed here

If the consumer is to be encouraged to make an effort to be economical, so too the distributor In some countries much progress has been made by the individual entrepreneur in reducing costs by the elimination of waste, the better use of labour, transport and space, in others, much ground has to be covered. The smaller retailer, who often takes to his trade because it does not require special training or qualifications often appears to lack knowledge of the best methods of organising his affairs The Linlithgow Committee indeed reported, in regard to the fruit and vegetable trade in the United Kingdom, that " a large number of retailers lack business training and efficiency in the conduct of their business " and calculated that by improved methods they could reduce prices by " over one twelfth ". It does seem that even to-day there is scope for the undertaking of detailed studies of the organisation of small enterprises with a view to the propagation of improved methods.

More radical methods than such as the above have frequently been proposed and put into practice. On the one hand producers have organised co-operatives to carry out the whole process of collection and placing on the wholesale market. On the other hand retailers attempt to avoid the private wholesale dealers by organising a wholesale co-operative. And again, consumers have joined retail co-operative societies whose aim is to eliminate retail profits from the consumer's price. The co-operative efforts have had an undeniable success in many trades. Sometimes these attempts to " eliminate the middleman " arise spontaneously, quite often however they result from public encouragement in the form either of propaganda and instruction or of more concrete assistance. The co-operative form of organisation evidently possesses certain advantages through the centralisation of marketing and the elimination thereby of many costs which would be incurred if each producer acted independently, marketing his own small quantities separately. Though co-operation has made considerable progress since the war, the question of how far the principle of co-operation can be extended today obviously deserves the careful attention of those who are interested in the reduction of distribution costs.

In the Report, in the study of distributive margins on bread in Germany it is suggested that economies could be made if bakers of a given district organised co-operative factories which would manufacture all the standard types of bread whilst the baker would concentrate his production on the more fancy goods. According to the study from which the suggestion is taken, such methods had already been adopted in Denmark, with considerable success. This example as well as the post-war trends in the organisation of the distribution of milk sugggest that where an important part of the distribution process consists in the transformation, of the raw foodstuff, that transformation may most economically be performed centrally, and on a large scale.

It will be seen that there are possibilities of appreciable reductions in costs provided that traders learn to co-operate. One of the main reasons for excessive costs noted in the preceding section was the overlapping of retailers' services. Here again the remedy lies in co-operation among retailers—in co-ordinating their activities and dividing up their market. In most cases the large number of retailers in a given area would prevent the assignment of a given number of streets for order business to a single retailer—co-operation to that degree is hardly practicable. But the assignment of several streets to a group of several retailers would probably suffice to reduce overlapping and duplication whilst impeding monopolistic behaviour on the part of those retailers.

Less success has attended the efforts of individual farmers to carry out their own marketing themselves. Though the farmers thus avoid the middleman the fact that they have to divide their time and resources often tends to diminish their efficiency both on the farm and in marketing. Nevertheless, where a large farmer creates a separate dependent marketing organisation this defect may be overcome. It is however unlikely—except in the case in which distribution costs are a small proportion of the value of the commodity—that a farmer distributing directly his own wares is able to make the economies that concerns can make which are engaged in the distribution alone of the goods of many farmers.

Such methods as the above by no means exhaust the list of possibilities of reducing the costs of distribution. No mention has been made, for example, of the possibilities of direct State action to remove certain indirect taxes and duties, to revise and reorganise transport rates, nor of all the many mechanical appliances which in various countries have been used to economise labour or shop space. That there are possibilities in these directions is almost self-evident. The aim of this section has been indeed, not to present an exhaustive list, but to show by a few examples that there are sufficient possibilities of reduction of distribution costs to justify the belief which underlay the proposal of the League Committee on Nutrition to the Institute to collect material on the distributive margin—the belief, namely, that research in this field combined with appropriate action could contribute to lowering prices of necessary goods to the consumer and consequently to the improvement of nutrition standards. The Report is only a tentative first effort in this direction; if it succeeds in stimulating further enquiry it will have achieved its purpose.

A. EMANUEL.

THE NEW WHEAT POLICY IN FRANCE

SUMMARY Period from 1929 to 1935 – Period from 1935 to August 1936 – The Law of 15 August 1936 creating the National Wheat Office — *I Market Organisation* (1) Protection of the national market, (2) Organisation of the national market — *II Measures concerning Production* (1) Existing laws confirmed (2) New measures — Conclusion

The most important arable crop in France is wheat. Wheaten bread became years ago, and still remains, the basic food of the French population. The French are large consumers of bread and a large proportion of the French population gains its livelihood from the cultivation of wheat. Under these circumstances successive French governments have not been able to do other than to intervene according to the conditions, sometimes in the interest of consumers, sometimes in the interest of wheat producers. In the past there was a fear of famine which was not without justification. In the years immediately following the Great War public opinion and public authorities were concerned to check high costs of living. However, in spite of a reduction in the area sown to wheat domestic production quickly increased, as a result of an increase in yield due to technical progress, to the pre-war level; while in the French colonies in Africa, whose territory was in ancient times the " granary of Rome ", wheat production developed rapidly. On the other hand wheat consumption per head tended to decline and the size of the French population had become stationary In these circumstances the danger of overproduction of wheat became real, and it presented a serious problem in 1929 when an abundant harvest coincided with a collapse of world prices, particularly agricultural prices.

The fall in the world prices made the competition of the imported cereals ruinous for French producers and practically prevented them from exporting wheat.

From that time successive governments have taken various measures to help the wheat producer. The latest is the setting up, under the Law of 15 August 1936, of the Wheat Office. This measure was taken at the moment when several conditions were about to be completely changed. Stocks had already been in large measure absorbed. From that time wheat prices on the major world markets recovered. It was followed by a poor harvest and a little later by the devaluation of the French franc and a general rise in prices in France. So, in these conditions, it was frequently said that this measure to stabilise the price of wheat, taken in the interests of the farmers, in fact worked against them.

The period between the crisis year 1929 and the date of the establishment of the Wheat Office can be divided into two distinct phases.

Between 1929 and the end of 1934 the unsatisfactory measures taken by the government, which have already been dealt with in this *Bulletin* (1), led to the accumulation of an enormous stock of wheat. From December 1934, when a new wheat law, also studied in the article mentioned above, was passed the stocks tended to be absorbed partly as the effect of a policy which from the beginning of 1934 sought to control not only the market but also production, partly as the result of weather conditions.

Period from 1929 to 1935.

At the end of 1929 the import of wheat was indirectly limited through the limitation of the proportion of foreign wheat used in flour milling. At the beginning of 1930 recourse was had to the traditional but very inadequate measure, the increase of the import duty on wheat; the duty was raised to 80 francs, that is to say made equal to the price of wheat on the major world markets. In 1932 customs duties on secondary cereals were raised. Almost at the same time the import of barley and bran was also limited, and at the beginning of 1933 maize imports were similarly regulated. But these measures came too late. The prices of secondary cereals had collapsed. The cheapness of other fodder supplies reduced the demand for wheat offals ; and these low prices made it the interest of the millers to extract from wheat the highest possible proportion of bread flour. On the other hand, the high price of wheat relative to that of other cereals encouraged farmers to take particular care in the growing of wheat, and there was perhaps here and there an increase of the area sown to wheat. Large stocks were accumulated the final disposal of which was doubtful. In the middle of June the price of wheat fell to 80 francs per quintal.

The Law of 10 July introduced the principle of a minimum legal price. Further, it prohibited for two months the importation of soft wheat, provided for the creation of wheat stocks and for the reduction of the coefficient of extraction in the milling of bread flour, and established bounties on denaturation and on exports. In August 1933 the above mentioned policy of import quotas was applied to oats, rye, buckwheat, durra, millet, and canary-grass. There remained still some gaps to be filled up Thus, the import of rice which could be substituted for denatured wheat and wheat offals in animal feeding, has never in fact been limited. The competition of denatured wheat reduced the prices of secondary cereals, which continued to decline. Above all these measures like the previous ones had the major defect of affecting only the market and not production itself. The original plan of the Governement had indeed provided for the limitations of sowings, but this provision was not passed. In the final text there was only a provision for the obligatory declaration of the areas sown to wheat. Wheat remained the most attractive crop, since the growing of other cereals was highly unprofitable while wheat-growing left, at least for certain farms and in certain districts, a margin of profit for the farmer (1). At the legal price supply greatly exceeded demand. So that in fact the minimum price was not respected (2).

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(1) Dr. H. BÖKER: " The Wheat Policy of France ". *Monthly Bulletin of Agricultural Economics and Sociology*, March 1935.

It was only in the Law of 28 December 1933 that there was a provision for a fine to be imposed on those farmers who do not follow the rules for crop rotation and who sow wheat on land which produced a wheat crop in the previous year. At the end of 1934 the price on the "black" market was between 75 and 85 francs (3).

The Law of 24 December 1934 abolished the minimum price except for wheat from stocks. This abolition was accompanied by two series of measures, the one aiming at the removal of the surpluses by means of denaturation and export, the other prohibiting the increase in sowings.

Period from 1935 to August 1936 (4).

At first the farm price of wheat fell to 70—65 francs per quintal, according to the *Bulletin* of the Wheat Producers' Association. Later it changed little until July, while the wholesale price at Paris remained almost stable at about 79 francs per quintal. In July the price at Paris fell to 69 francs; but the farm price of wheat fell very much more and according to the Wheat Producers' Association wheat on the farm was sold on 1 August for only 50 francs. The spread between the price on the farm and the wholesale price had thus increased very much. Certain farmers, pressed for money, were compelled to sell at disastrous prices immediately after the harvest. An attempt was made to finance the harvest.

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(1) According to the Central Office for Accountancy and Rural Economics, on the large farms of the Soisson district wheat and sugar-beet were the only crops which yielded a profit in the season 1930-31. M. Ferté, president of the Office for Agricultural Accountancy in the Soissons district, calculated that from 1927 to 1931 the cost price per quintal for wheat amounted to 161.98 francs, the average sale price per quintal of wheat in Paris in the seasons 1930-31 and 1931-32 was 172 and 161 francs respectively. But the cost price varies from region to region and even from farm to farm.

(2) THE WORLD AGRICULTURAL SITUATION IN 1933-34, International Institute of Agriculture Rome, 1935, pp. 182-3. THE WORLD AGRICULTURAL SITUATION IN 1934-35, International Institute of Agriculture Rome, 1936, p. 237.

(3) PIERRE FROMONT: "La production agricole" in the year book for 1935 published by *La Revue d'Economie politique* in May-June 1936.

(4) For this period we have used this study by Professor FROMONT in the year-book for 1935 published by *La Revue d'Economie politique* in May-June 1936 and "Le nouveau statut du blé en France" by M. ROLAND MASPETIOL in *Revue économique internationale*, February 1936.

The Bank of France agreed to give its assistance to agricultural credit banks in order to allow them to make loans to farmers which should allow the latter to space out their sales. The Decree-Law of 30 October 1935 abolished the tax on production; in doing so it merely recognised the financial failure of the tax.

The same decree-law sought to solve the problem of absorbing possible surpluses from the wheat harvest. It maintained in force the measures provided in the Law of December 1934; but it facilitated the putting into operation of these measures by providing for the collaboration of a committee composed of producers' representatives on the one hand and an equal number of representatives of corn merchants and millers on the other hand. Moreover this particular problem had become less urgent: stocks has already fallen and the 1935 harvest was not good. From the end of August prices of wheat rose. The farm price reached a maximum of 78 francs per quintal in September, and in December was 70 francs that is to say about the same level as in the previous January. Wholesale prices in Paris also reached in September a maximum of 84 francs per quintal, and in December were 78 francs, a level only one franc below that of the previous January. The price of wheat continued to rise during the first half of 1936. The farm price according to the *Bulletin* of the Wheat Producers' Association, was 80 to 82 francs in January, 88 to 92 francs in February, 100 to 102 francs in March, 93 to 97 francs in April, and 96 to 87 francs in May, which is twenty per cent. above the price for May 1935.

But the increase in the spread between the farm price and the wholesale price which occurred in August 1935 caused great discontent among the farmers. Some of the farmers appealed to the State to intervene more energetically (1). Others hoped for a solution on corporative lines and expected much from an organisation of agriculturists (2). The agrarian party demanded the creation of an Assembly which should discuss and decide upon economic questions and participate with the Parliament in the making of laws. However, the General Association of Wheat Producers demanded a trade organisation such that the producers themselves could arrange, should it be necessary, for the elimination of possible surpluses. The procedure established by the Decree-Law of October 1935 seemed to mark a first step in this direction.

The Wheat Office figured in the programme of the "front populaire." It cannot be said, however, that this represents economic planning in the strict sense. Actually it was not a question of a general plan for agriculture; the Wheat Office represented a very partial State control which was concerned only with wheat, the price of which is by tradition considered as the symbol of the economic position of French farmers. The election of May 1936 gave a majority to the "front populaire". The new government took office in June. Almost immediately afterwards was passed the Law of 15 August 1936 wich created the National Wheat Office.

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(1) Professor HORNBOSTEL was favourable to these claims and advocated the establishment by the Government of a fixed price for wheat. See his pamphlet published at the end of 1935 " Peut-on stabiliser le prix du blé ? Une solution corporative en harmonie avec l'intérêt général ".

(2) JEAN SIROL: " Le caractère actuel de la crise agricole et en particulier de la crise du blé en France ". *Revue d'économie politique*, January-February 1936.

The Law of 15 August 1936 creating the National Wheat Office.

The main duty of this Office is to fix a price for wheat and to keep stable the price for any particular harvest. It supervises the wheat market, and regulates the trade in and production of wheat.

I. — Market Organisation.

(1) *Protection of the National Market.*

It is possible to maintain within a country a price superior to that on the world market and to regulate the national market, only if this market is isolated. This has in fact been for many years the position of the French wheat market. It must be pointed out, however, that French policy continually vacillates between the idea of a national market and the idea of an imperial market, and neither of these conceptions has been exclusively adopted. The Law of 1936 did not affect this isolation of the French market. The monopoly of foreign trade which it gave to the Wheat Office is nothing more than the logical conclusion of the quota policy. The instrument for this policy is most generally that of import licences, often issued by the intervocational committees which function under the control of the Government. The Decree of 10 November 1931 created an intervocational committee for wheat This was given the duty to issue import licences during the period when the import of foreign wheat was allowed within certain limits. It also issued after 1932 import permits for wheats imported under the system of temporary admission (1), this system represented a gap in the protective policy which was all the more serious as it prevented production in the French colonies in Africa from being attracted to hard wheat and strong wheat which are not produced in the home country. The quotas for Moroccan wheat and alimentary pastes were in accordance with an agreement made in 1932 for a period of five years by the producers' associations in France, Algeria, and Morocco.

The Law of 1936 gave to the Wheat Office scarcely any really new functions; its main effect was to transfer to the Wheat Office functions which until then had been divided between the Government and the intervocational Committee which was dissolved shortly after the setting up of the Wheat Office. This new office is administered partly by a Central Council created by the

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(1) THE WORLD AGRICULTURAL SITUATION IN 1932-33, International Institute of Agriculture, Rome, 1934, p. 178.

Law of 15 August 1936 and composed of 51 members, 29 of these being wheat producers, while most of the other members apart from 4 high officials represent millers, bakers, etc., and consumers; and partly by a director nominated by the Government and having under his control a staff taken from the Ministry of Agriculture. The Central Council decides what amount of wheat can be imported, and in the case of overabundant harvests, what amount should be exported. These decisions along with the fixing of the price of wheat, that is to say in practice all the important decisions, need a quorum of four fifths of the members and a three quarters majority. When the required quorum and majority are not obtained the decision is taken by the Government.

The Central Council of the Office decided that for the time being there was no reason to allow the import of foreign soft wheat (1). The bureau of the Office gives import permits for hard wheat, rye, and alimentary pastes made from wheat The import of rye is, however, at the moment forbidden in France except in the case of rye for seed which is allowed up to a limit of a quarterly quota of 10,000 quintals (2) It also issues permits for the export and import of wheat, flour, and semolinas, and food pastes, under the new system of temporary import which is nothing else than the old customs system of temporary admission, suppressed and at the same time reestablished under a new name by the Law of 15 August 1936 (3) Finally, the Central Council of the Wheat Office gives advice to the Minister of Agriculture on the determination of the quotas for wheat and Moroccan semolina admitted free of duty into France and Algeria

It is clear that the Office does not handle foreign trade. It does not directly conduct any import or export transaction, it confines itself to authorising and supervising these transactions

(2) *Organisation of the National Market*

The Central Council of the Office fixes the price of wheat after having examined the suggestions of the departmental committees which are for the departments somewhat the same as the Central Council is for the national area. It takes this decision under the same conditions of a quorum of four fifths and a majority of three quarters which we have already described in connection with the determination of the import and export quotas. If these requirements are not obtained the decision lies with the Government. This solution is the result of a compromise between the Government and the two Chambers. At first, the Government, supported by the Chamber of Deputies, required unanimity for decisions of the Office on price questions; the Senate, on the other hand, wanted such decisions to be taken on a simple majority. The price thus fixed applies to wheat of sound quality, free from impurities, and merchantable, and weighing at least 72 kg. per hectolitre. Deductions and allowances are made for wheat of poor and extra good quality respectively.

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(1) GOVERNMENT MEASURES AFFECTING AGRICULTURAL PRICES, No. 9, 3rd year, 1937, France, page 23, International Institute of Agriculture, Rome.

(2) GOVERNMENT MEASURES AFFECTING AGRICULTURAL PRICES, No. 7, 2nd year, 1936, France, p 115, Quota for the fourth quarter of 1936 International Institute of Agriculture, Rome.

(3) See article 16 of the Law, and the parlamentary debates on this subject (especially *Journal officiel* of 2 August 1936). See also GOVERNMENT MEASURES AFFECTING AGRICULTURAL PRICES, No 7, 2nd year, 1936, France, p 119, International Institute of Agriculture, Rome

The Central Council unanimously fixed the price in September at 140 francs per quintal with a monthly premium of 1 franc up to and including January, and of 1 50 francs from then until the new harvest This premium does not appear too high if it is born in mind that at the present time in France the rate of interest is relatively high. According to the General Wheat Producers' Association this unanimous decision is the result of a compromise. The production tax that has been reestablished reduces on the other hand the net profit of the grower It is, however, true that it only applies to producers of more than 100 quintals, and, moreover, deduction is made for wheat exchanged for flour or bread This price is uniform for the whole of France If the text of the law does not expressly forbid changes in the wheat price during the year, it is clear, as the Minister for Agriculture, M Monnet, pointed out in a recent speech, that this was the intention of the authors of the law It is a rigid system In order that it may be just it is essential that there shall be monetary stability Now it is well known that this condition was not realised, since the French franc not only fell, as a result of depreciation, in value relatively to foreign currencies and gradually approached the lower limit of the anticipated parity, but also rapidly depreciated in terms of domestic goods after these events It is generally agreed, however, that the official wheat price rules and that the new legislation has over the minimum price law of 1933 at least the advantage that " black " markets are much less common. The original plan of the Government provided that all the seasons' output should be bought by the co-operative societies for the purchase, stocking, and sale of wheat, but although during recent years the co-operative movement has become very widespread among wheat producers in France it was recognised that its size was not yet sufficiently great for these societies by themselves to undertake this function. Recourse had to be had to the services of grain merchants. The assistance of commerce remains at the moment indispensable if only by reason of the lack of store-houses. The millers could no longer buy directly from the producers who had to sell their wheat either the co-operative societies, or to the grain merchants from whom certain guaranties were however required. The fulfilling of these obligations is controlled by means of receipts which should accompany the wheat from the store to the mill. Where there is a direct delivery from the producers' granary to the mill this delivery has to be authorised by the co-operative society whose authorisation takes the place of the transport permit. While taking these measures and providing for the stocking and export of surpluses the law took precautions against further overproduction.

II. — Measures concerning Production.

Some of these measures simply confirm existing laws; others, in general more indirect, are new

(1) *Existing laws confirmed.*

Increase of the area sown with wheat is still prohibited. This measure is however difficult to apply. In order to make it effective it would be necessary to know exactly the area sown to wheat, and there is in France no exact information about this. Obligation to declare the area sown to wheat was imposed by the Law of 10 July 1933 and a similar obligation in respect of the amount of the harvest was made by the Law of 24 December 1934 The Law of 15 August 1936 required the publication of these declarations. The trouble is that in Franec farmers rarely know exactly what is the area they cultivate. Further, in the case of tenant farmers there is always a tendency to minimise the size of the harvests declared in order not to give the owners a reason for increasing the rent.

M Marcel Donon, at that time rapporteur of the Committee for Agriculture, declared at the sitting of the Senate 29 June 1934. " the farmers have hardly accepted the idea of the obligatory declaration " The obligatory declarations of the areas sown to wheat, required by the law, gave a figure of 3,820,000 hectares while the official statistics of the Ministry of Agriculture gave 5,342,000 hectares. It is certain that the areas declared in the town halls did not correspond with the actual areas The statistics of the Ministry of Agriculture, moreover, have not a very great value on this particular point

It is difficult to check the declarations of the farmers. In France the land register is already very old and out of date.

It is in process of being brought up to date but at the present time the work it not nearly finished and it is probable that for a long time it will be much more difficult to obtain exact knowledge of sown areas in France than it is to obtain similar knowledge in new countries and with recent land registers.

(2) *New measures.*

The system of transport permits instituted by the Law of 15 August 1936 allows the checking if not of the declaration of areas sown, at least of the size of crops.

In the 1937 season if there are surpluses the amounts that the Wheat Office decides to stock and to export will be provided by farmers selling more than 50 quintals, pro rata to the average of their last three crops and the price can not be more than 20 per cent. less than the price fixed for the national output.

From the 1938 season there will be established a wheat production quota for each producer selling more than 50 quintals. Those among them who produce more than this quota will have to sell the surplus to the Wheat Office through the co-operative society to which they make deliveries, for stocking and export.

The Office will pay for the surpluses at a price reduced by an amount determined by the Central Council. It is hoped that this difference between the price for surpluses and that for quotas fixed in accordance with normal sowings will make the wheat producers keep to these quotas. Above all it is hoped, since the increase in the area sown was probably not the most important cause of overproduction, by this means to make the farmers refrain from sowing the most productive types of wheat (1).

The hope is that varieties with a lower but more uniform yield will be more generally grown. As varieties with a large yield are sought above all by the large farmers of the Isle de France it is hoped that the law fixing a given production for producers of more than 50 quintals will be sufficiently effective. The future will tell whether or not it is so. To achieve this aim would be a large step towards the solution of the problem of the French wheat market

Conclusion.

But it is always necessary not to be too optimistic and not to forget that however commendable the measures taken the output and therefore the price of wheat will always depend to a large measure on weather factors and natural variations. For this reason even if it is possible to organise the market better than it was organised in the past, even in respect of wheat production, the desired stabilisation of the price of wheat in particular and of agricultural products in general will always be more difficult than the stabilisation of the prices of industrial products Finally, it must never be forgotten that the stabilisation of prices is subordinate to monetary stabilisation, and that without monetary stability the stabilisation of a given price is unsound.

M APCHIÉ.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Sociology.

INSTYTUT GOSPODARSTWA SPOLECZNEGO, Warszawa. Pamiętniki chłopów. Warszawa, 1936. v. 2. (Nr. 1-10).
[Second title in French: Mémoires de paysans].

UNITED STATES. National resources board Land planning committee. Certain aspects of land problems and government land policies Washington, Govt. printing office, 1935. v, 139 p. (Supplementary report. Part. 7).

Economics.

MORGENSTERN, O. The limits of economics. Translated by Vera Smith. London, W. Hodge & co., 1937. VII, 160 p.

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(1) This intention was clearly expressed during the parliamentary debates.

Statistics

Bowley, A. L. Elements of statistics. 6th ed. London, P. S. King & son, 1937. xv, 503 p.

Hickmann, E. und Karlheinrich R. Statistisches Handbuch des Aussenhandels Deutschlands und der Welt 1937 Berlin, « Die deutsche Tat », 1937. xiv, 389 p.

Rural Economics.

Bandini, M. Agricoltura e crisi. Firenze, G. Barbèra, 1937. 265 p. (Biblioteca di coltura per i rurali sotto gli auspici della Reale accademia dei Georgofili, v. 5).

Brizi A. Lezioni di metodo dell'estimo agrario. Portici, Facoltà di agraria della R. Università degli studi di Napoli, 1936. 313 p.

Franges, O von. Die sozialòkonomische Struktur der jugoslawischen Landwirtschaft Berlin, Weidmann, 1937. x, 288 p. (Schriften der Internationalen Konferenz für Agrarwissenschaft (International conference of agricultural economists).

Országos Magyar gazdasagi Egyesulet, Budapest. Mezògazdaságunk üzemi eredményei 1935. évben, Budapest, « Patria », 1937, 139 p [Results of Farm Accountancy].

Oxford University Agricultural economics research institute The Agricultural register 1936-7. Oxford. 1937. 325 p.

Struktura spoleczna wsi polskiej. Warszawa, [Drukarnia techniczna], 1937. xvi, 323 p. (Warszawa. Instytut gospodarstwa spolecznego. Sprawy agrarne, nº 1) [Second title in French: La structure sociale des campagnes polonaises].

Credit.

Georgs, H Die ländlichen Kreditgenossenschaften in der Kreditversorgung des Erbhofes Leipzig, H Buske, 1937 128 p. (Beiträge zur Genossenschaftskunde. Schriften des Seminars fur Genossenschaftswesen an der Universität Halle-Wittenberg, hrsg. von Georg Jahn Hft. 4).

Latvijas tautas bankas, Riga. Latviešu kooperativais kredits. [Riga, « Grâmatrūpnieks »], 1937. 491 p. [Second title in German: Der lettische genossenschaftliche Kredit, 1937 hrsg. von der Volksbank Lettlands]

Labour.

Confederazione fascista dei lavoratori dell'industria I 10 anni della Carta del Lavoro. [Roma], 1937. 601 p. [See: « Gli agricoltori per i lavoratori », p. 418-422. « Realizzazioni e prospettive sindacali in agricoltura », p. 423-452].

Commerce.

Canada. Royal commission on prices spreads Rapport de la Commission royale d'enquête sur les écarts de prix. Ottawa, J.-O. Patenaude, 1935. xxxi, 541 p.

Mitsubishi economic research bureau, Tokyo. Japanese trade and industry: present and future. London, MacMillan and co., 1936. xviii, 663 p. « Agriculture », p. 149-181.

Pégourier, Yves. Le marché du riz d'Indochine. Paris, Librairie technique et économique, 1937. vii, 139 p.

Villeneuve, Jacques. La préférence impériale et le commerce des pays britanniques depuis la crise. Paris, Librairie technique et économique, 1937. 232 p.

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Saturday; [illegible] Tuesday; [illegible] Wednesday; [illegible]
They will be broadcast from Rome 1 (420.8 m.) and Rome 2 RO (25.4 m.).
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MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

THE TREND OF MARGARINE PRODUCTION IN THE MOST IMPORTANT MARGARINE PRODUCING COUNTRIES

CONTENTS: *General trends.* - *Margarine production in the last few years*: Raw materials used, Importance of whale-oils in margarine production. - *The trend of margarine production in the most important producing countries*: United States, Germany, Great Britain, Denmark, Netherlands, Czechoslovakia, Sweden, Norway, U. S. S. R., Belgium, Finland and Japan.

General Trends.

In the December 1934 number of this journal there appeared an article on the trend of the production and use of margarine in the most important margarine-using countries of the world. The purpose of the present article is to review further developments, these being of the greatest interest from the point of view of the fat supply and also of particular importance for the general agricultural economy. The margarine industry is an important consumer of agricultural products, and the by-products from the preparing of its raw materials are an important contribution to the supply of fodder; and this supply of fodder is an important factor in the increase of milk and thus of butter production, with which margarine is at times in strong competition. The relations between agriculture and the margarine industry are thus most complex.

In the first article we showed that the margarine industry increased rapidly after the end of the nineteenth century, when the industry had been in existence but a short time, as a result of the continuous increase in the demand for fat in industrial countries in North and Central Europe, a demand which could not be completely met either by home production or by the import of animal fats from overseas. Margarine was well adapted to consumption habits in these countries and soon became an indispensable food.

We saw also that the margarine industry further increased in the post-war period, and that this was the result on the one hand of the severe shortage of fats after the war and the decreased power of large classes of people to buy animal fats whose prices had risen greatly, particularly butter; on the other hand it was no less the result of the improvement in the quality of margarine and of the reduction in its price due to increased mechanisation of the production processand to the possibility of using cheaper raw material as a result of improvements in the methods of refining and hardening, and the result finally, in the later years, of an over-supply of raw materials. The competitive power of margarine was moreover increased by the amalgamation of the margarine industry which facilitated the carrying on of systematic propaganda. The progress in oil processing allowed the choice of raw materials to be made more and more on the basis of price trend, and so the proportion of the products of tropical lands and of whale-oil to the total raw materials increased continuously.

As long as there was a good market at good prices for butter in North and Central European countries and in the United States, in which margarine production was almost entirely concentrated, there was in but few countries a strong opposition to the margarine industry from the agricultural interests of the country, in spite of the increase in margarine production. Legislation in almost all countries was concerned only with checking illegitimate competition by margarine with butter, and with checking butter adulteration. Margarine filled up a gap in the fat supply in many countries. As the development of the production of animal fats was not proportional to the increasing needs severe measures did not come into consideration. About 1929-30 the position began to change. The increase in butter production, the intensification of the crisis and the resulting fall in purchasing power, the decline in butter exports, and the fall in butter prices, led to an increase in the competition between margarine and butter. The result of the fall in the price of butter was, on the one hand, that butter was again able to a greater degree to compete with margarine, and, on the other hand, that governments took numerous measures to protect the milk industry, measures which in a large part were inimical to the margarine industry.

The variety of the measures taken in the several countries show how different are the conditions of the fat supply in different countries. In some countries there was an increase in the tax on margarine and in the customs duty on margarine and raw materials for its manufacture, in others colouring was forbidden, production quotas established, with or without a quota for the import of oil raw materials, the use of margarine for certain purposes forbidden, and in some cases there was even a prohibition of the production and use of margarine. In certain countries with an excess production of butter a system of compulsory mixing of butter with margarine was established.

Agriculture was opposed to the margarine industry particularly on the ground that this industry used raw materials drawn in large measure from foreign countries while home-produced oils and fats could not find a satisfactory market. The objection of agriculturist in important margarine-producing countries was directed against the use of the products of tropical or subtropical lands with low standards of wages or with highly mechanised production, and against the excessive use of whale-oil. In many countries the regulation of the fat industry was regarded as a vital question for agriculture.

It was further shown in the previous article that under the influence of the conditions at that time many far reaching demands were made. We expressed however, the view that in most of the countries concerned it was not possible to contemplate far reaching permanent measures, since, an excessive increase in the price of margarine and an excessive decrease in the amount produced would reduce to an intolerable degree the fats supply of large classes of people, but that on the other hand it had to be taken into account that it was impossible to expect that over a long time there could be in most of these countries an unlimited free competition between margarine and products of agriculture and that the output of the margarine industry would have to be so adjusted as not to destroy the marketability of animal fats. By studying the development of the last two years we shall now attempt to discover to what extent actual developments support the statements made in the previous article

Margarine Production in the last few years.

The decrease in margarine production which had already begun to take place in several countries in 1930 continued in certain countries only until 1933. In 1934 there was in several countries a considerable increase in production which in 1935 became general for all the important margarine-producing countries It soon became evident that a change had taken place in the conditions of the fats market which was the result of a pooi output of the raw materials of the fat industry, a smaller production of animal fats due to a poor output of fodder, and a compulsory reduction of output on the one hand, and of an increased demand due to increased employment on the other hand. The significance of margarine in the fats supply in the large European industrial regions was again made evident.

In several countries the measures regulating the margarine production which were taken during the crisis years were gradually relaxed, but in only a few cases was unlimited production re-established. Among the large margarine-producing countries only Great Britain took no special measures limiting margarine production. The reason why production was decreasing even there after 1930 was the lower butter prices When the price of butter rose in 1935 margarine production increased. In other countries it was still sought to adjust production to the market for home-produced animal fats. It is doubtful whether the measures in force at the present time in these countries are in many cases appropriate. More than in the previous years the question of margarine production is today in the several countries no longer an isolated question but part of the general problem of fats supply.

As regards the kinds and source of supply of raw materials used by the margarine industry, the tendencies existing for many years are still evident at the present time. However, in particular cases there have been important changes. The use as raw material of land-animal oils and fats temporarily increased in countries where it was compulsory to mix butter with margarine, especially in Holland. But in general there was further decrease in the use of animal oils and fats.

The percentage of these fats in the total quantity of oils and fats used as raw materials in the margarine industry in the United States fell from 72 per cent. in 1913 to 27 per cent. in 1929 and to between 8 and 9 per cent. in 1936, in Germany it fell from over 50 per cent. in 1913 to 5.75 per cent. in 1928 and to 3 53 per cent. in 1933, in Great Britain from 11 per cent. in 1927 to 7 per cent. in 1935, and in Denmark from 77 per cent. in 1905 to 18 per cent. in 1913, to 7 per cent. in 1928 and to 6 per cent. in 1935. For the important margarine industry of Holland, which is of special international importance, similar figures cannot be given since in Holland statistics on the use as raw materials of oils and fats from land animals and from sea animals respectively are not separately presented.

The smaller use of animal oils and fats in the margarine industry was due either completely to the increased use of vegetable oils and fats, as was the case, for example, in the United States, or to the further increase in the use of whale-oil, as was the case in the most important European margarine-producing countries.

The kinds of vegetable oils and fats used vary from country to country, as we shall see in the subsequent consideration of individual countries, and is subject within a particular country to considerable fluctuations due to changes in the relative prices of the various raw materials that can be widely substituted for each other

The importance that now attaches to the use of whale-oil can be seen from several facts The percentage of whale-oil in the total quantity of oils and fats used by the margarine industry increased in Germany from 9 8 per cent. in 1924 to 15.9 per cent in 1928 and to 39.1 per cent. in 1933, rose in Great Britain from 17 per cent. in 1928 to 37 per cent. in 1935, in Denmark from 1.5 per cent. in 1924 to 10 6 per cent in 1928 and to 22.7 per cent in 1935, and in Norway to 24 7 per cent. in 1925. The margarine industry of the United States, on the other hand, used no fish- and whale-oils.

The amount of whale-oil used in the last few years has thus not only not decreased but has actually increased. There is today no question of reduction of the import and use of whale-oil, so widely discussed during the crisis years; on the contrary, other countries besides Norway and England, especially Germany, Japan, and Russia, are now seeking to increase their share in the output of whale-oil. Only the fear that through too intensive exploitation the supply of whale-oil may be exhausted and whale fishing become unprofitable has induced several countries to agree to a limitation of the output of whale-oil. After the exceptionally large output of whale-oil in the years 1930-31 had resulted in a complete collapse of prices, the Norwegian whale fleet and a large part of the fishing fleet of other lands, which however were relatively of minor importance, did not go to the whale fields; and in each year from 1932-33 the output was limited by an agreement between the most important countries concerned, on at first the length of the whale fishing season and, later, the number of whale-catching ships to each floating factory. With about 2.6 million barrels in 1932-33 and in 1933-34, 2.7 millions 1934-35, 2.9 millions 1935-36 and probably 2.6 millions in 1936-37 the output of whale-oil remained considerably lower than the record figure of almost 3.7 million barrels reached in 1930-31. On the initiative of the British Government there met in London at the end of May 1937 a Conference to regulate whaling for 1937-38. The discussions led to an agreement signed by

TABLE I. — *Production of Margarine and other Artificial Fats.*

(In thousands of quintals).

		1913	1924	1928	1929	1930	1931	1932	1933	1934	1935	1936
1) *United States* ..	Margarine	690	1,052	1,436	1,616	1,477	1,043	922	1 113	1,199	1,731	...
	Lard compound	4,536	3,765	5,186	5,534	5,494	5,314	4,288	4,321	5,463	7,016	...
2) *Germany*	Margarine	...	...	4,368	...	...	...	5,100	4,055	3,817	(1) 4,072	4,233
	Mixed artificial fats	...	...	171	...	...	...	...	169	122	129	136
	Pure vegetable fats	...	...	328	...	...	...	...	423	...	...	...
	Total	*2,000*	*3,400*	*4,867*	...	...	...	...	*4,647*	...	...	...
3) *United Kingdom*	Margarine	(2) 818	1,864	...	...	2,049	...	...	1 753	1,543	1,779	...
	Lard compound	...	256	...	...	451	...	...	560	574	...	...
4) *Denmark*.......	Margarine	420	694	765	789	826	793	733	743	717	780	...
	Palmine	...	...	...	...	5	8	11	14	12	15	...
	Lard compound	...	...	...	...	15	20	16	16	11	17	...
5) *Netherlands*	Margarine	884	1,308	1,399	1,327	1,276	1,113	(3) 627	(3) 517	(3) 525	(3) 532	(3) 555
	Fats used for cooking and in bakeries, and other refined fats and oils	...	234	358	378	319	204	39	38	41	69	66
6) *Czechoslovakia*..	Margarine	...	...	...	...	...	...	...	...	698	603	...
7) *Sweden*	Margarine	236	298	507	552	531	497	499	502	533	559	...
	Artificial fats	9	2	7	8	10	5	4	4	7	12	...
	Coco fat	3	10	9	11	11	12	11	12	14	17	...
8) *Norway*	Margarine	274	429	466	472	473	474	479	481	495	513	553
	Artificial lard	...	...	4	4	3	3	6	7	11	15	14
9) *U. S. S. R.* (4) .	Margarine	0	0	0	0	63	173	333	382	328	...	...
	Vegetable fat compounds	0	0	0	0	0	25	44	39	270	...	...
	Animal fat compounds	0	0	0	0	0	2	5	96	94	...	...
10) *Belgium*	Margarine	101	281	444	493	444	340	282	347	382	458	...
11) *Finland*	Margarine	...	48	98	100	84	72	63	85	83	...	...
12) *Japan*.........	Margarine	...	...	...	...	...	...	11	16	16	...	...

(1) From 1 April 1935, including the Saar — (2) The figure for 1912. — (3) Excluding the amount of butter admixed according to state regulations. — (4) There was no production before 1930.

the representatives of Norway, Great Britain and Northern Ireland, the Argentine Republic, the United States, the Union of South Africa, Australia, Germany, the Irish Free State, and New Zealand Canada and Portugal were represented at the conference by observers It is hoped that these two countries and also Japan, which was the most important country not represented, will be parties to the agreement if not in this year at least in subsequent years. This agreement, which is much more far reaching than the Geneva agreement of 1931 and the subsequent understanding between Great Britain and Norway, will be in force in the first instance until 30 June 1938 In the agreement there are no new principals adopted. For pelagic whaling, that is whaling carried on by whale-catching ships attached to floating factories, there will be a close season for nine months of the year, except in the first year of the operation of the agreement when the open season will be extended by one week Whaling at land stations is to be subject to a six months close season for each station. North of 40 deg. Southern Latitude as far as the Equator, and in wide areas North of the Equator whaling is absolutely forbidden. South of 40 deg Latitude South floating factories and whale catching ships can in general operate only from 8 December to 7 March. Certain species of whales whose extinction is already threatened are protected absolutely, and so are all whale calves and female whales attended by calves. It is also forbidden to kill whales of less than a certain length Caught whales must be completely utilized

TABLE II. — *Output of Whale-oil*

(In thousands of barrels) (1)

Year	Total for all countries	Countries					
		Norway	Great Britain	Argentina	Japan	United States	other countries
1909 10	(2) 284	180	64			—	40
1912 13	(2) 766	590	133	—			43
1919-20	407	211	137				59
1924-25	1 040	597	347	—			96
1925-26	1,153	663	350				110
1926-27	1 192	680	389		—		114
1927-28	1 321	799	400			—	122
1928 29	1 886	1 210	513	97	7	36	23
1929-30	2,799	1,796	857	95		30	21
1930-31	3,687	2,317	1,131	88	16	50	85
1931-32	916	29	804	49	20	14	—
1932 33	2,597	1,317	1 180	55	22	13	10
1933-34	2 573	1,254	1 190	66	23	25	15
1934-35	2 691	1,239	1,289	53	42	25	43
1935-36	2 871	1,163	1,239	75	74	81	(3) 239

Source "International Whaling Statistics" Edited by the Committee for Whaling Statistics appointed by the Norwegian government, Oslo 1930 1936

(1) 1 barrel 1/6 ton, 1 ton — 1016 kg - (2) without the production of South Pacific and Japan for which there are no figures. — (3) Of which 205,801 barrels are from Panama, 18,238 from Russia, 8,789 from Chili, 2,972 from Denmark, and 3,415 from Iceland

The aim, expressed in the agreement, to make the catch correspond to the natural increase will, provided that the agreement is kept and later extended, not only assure the profitability of whaling but also eliminate an important disturbing factor in the market in fats.

Another tendency in the margarine industry in several countries was the increase in the use of imported raw materials during the last decades. This was undoubtedly a natural result of the insufficient output of oils and fats in the most important margarine-producing countries. The home production remained more and more below the increasing need, and the production of margarine was the cheapest way of providing the balance. A change in this position occurred first at the beginning of the crisis. The raw material imported for margarine production not only supplied the unsatisfied needs but also checked the use of home-produced oil and fats, the production of which was thus made unprofitable. Oils and fats from tropical and subtropical areas with low costs and from areas with low wages or mechanised production, and fish- and whale-oils, provided a competition which the products of agriculture and above all of peasant agriculture of more highly developed countries could not meet. In Germany, the country with the largest output of margarine, the percentage of home-produced oils and fats in the total oils and fats used as raw materials by the margarine industry was in 1932 between 2 and 3 per cent. Now, Germany is a country with a large demand for oils and fats and with a home production of fats covering only about half of the domestic demand for food fats, but the position was the same in other countries with larger home production, large unutilised possibilities of further home production, and already having difficulties in marketing home-produced oils and fats. The best example of this can be found in the United States. Here home-produced oils and fats as a percentage of the total oils and fats used as raw materials by the margarine industry fell from 74 per cent. in 1919 to 51 per cent in 1926, to 35 per cent. in 1930 and finally to 25 per cent. in 1933.

This increase in the use of foreign oils and fats has during the last few years, in several countries been not only checked but also partly reversed by a widely extending regulation of the fats market. Dependance on foreign sources for a large part of the fats supply is in many countries considered to be very undesirable from more than one point of view. Systematic measures were taken to regulate the fats supply. A reduction of the use of foreign raw materials was achieved in several countries by making it temporarily compulsory to add butter to margarine. In other countries there is compulsion to use other home-produced raw materials, or a tax preference in their favour. Particularly interesting from this point of view is again the position in the United States. Through the joint operation of several measures, customs, special levies and taxes, on imported raw materials or on margarine produced from these raw materials, the proportion of home-produced oils and fats increased from the figure of 25 per cent. to which it had fallen in 1933 to 43 per cent in 1934-35 and 47 per cent. in 1936.

The increase in the use of whale-oil was the result not only of the smaller supply of oil raw materials on the world market but also of the attempt to make the fats supply independent of imports from foreign countries. Other countries joined, sometimes at considerable costs, with Norway and Great Britain in the whaling industry as it was thus possible to obtain a raw material not controlled by a foreign state and which did not involve the use of foreign exchange.

Table I shows not only the output of margarine but also the output of artificial food-fats (lard compound, pure vegetable- and similar food-fats) and thus presents a general picture of the total output of artificial fats. From the point of view of their manufacture there are close connections between the different kinds of artificial fats. The country most important in the production of the so-called artificial food-fats is the United States. In the fat supply of this country lard compounds are much more important than margarine Thus in 1934 the output of lard compounds was 5.2 million quintals against an output of 1 2 million quintals of margarine; and when in the following years the output of margarine increased, that of lard compounds probably also increased. Also in the United Kingdom the production of lard compounds has a certain importance; here production has increased very considerably during the last ten years and even during the crisis, and particularly after the reduction of the import of lard from the United States in 1935-36. The next most important producing country is Russia, where production was first undertaken in 1931. In all other countries referred to in the Table lard compounds and other similar artificial food-fats constitute only a small part of the total output of artificial food-fats. This is certainly not to say, however, that this production is of only small importance; it is important especially locally, for like margarine consumption the use of other artificial food-fats is often concentrated in particular regions. In all countries production has increased in the last few years. Where production increased even during the crisis years this may be partly attributed to restriction of margarine production. In general, however, these food-fats, on account of their quality, compete less with butter and margarine than with lard and salted fat pork. This can be seen for example in the case of the United States.

This is a brief summary of the most important tendencies in the margarine industry which have been in operation in the last few years. We shall now make a more complete survey of the developments in the most important margarine-producing countries.

The Trend of Margarine Production in the most important Producing Countries.

United States. — The production and sale of margarine in the United States is subject to severe limitations imposed by both the Federal Government and the governments of the individual states. The first law passed by the Federal Government was the Oleomargarine Act of 1886 which made it compulsory to designate margarine " Oleomargarine ", and which imposed special occupational taxes of 600 dollars on margarine producers, of 480 dollars on wholesale dealers, and 48 dollars on retail dealers, and further a stamp tax of 2 cents per pound, payable by the producer, and an import duty of 15 cents per pound.

The Oleomargarine Act was subsequently amended six times. In 1902 the stamp tax was raised from 2 cents to 10 cents per pound for coloured margarine and to 1/4 cent per pound for uncoloured margarine. At the same time the special occupational tax was reduced in respect of uncoloured margarine to 200 dollars on wholesale dealers and to six dollars for retail dealers. Another important amendment came in 1931. The 10 cents tax on coloured margarine was made general for yellow margarine since the tendency was increasingly towards the use of palm oil, soybean oil and yellow oleo-oil which produced a margarine with a natural yellow colour. The result is that margarine must in practice have a white colour in order to avoid the higher taxes. The Act did not in fact forbid the packing of small quantities of colouring matter in manufacturers' original packages. Also the method of colouring may be stated on the package provided that there is also a statement concerning the conditions under which the colouring process is allowed without breaking the law. According to a Regulation from the United States Bureau of Internal Revenue the following persons may colour margarine:

" A private individual for use of his own family, household servants, and " non-paying guests;

" All institutions under complete control of the United States, a state or " political subdivision thereof for use of inmates or employees of such institutions;

" Co-operative clubs or fraternities for use of members where boarding expen- " ses of members are pro-rated and meals are not served to other persons for " compensation. "

The use of oleomargarine in Federal Institutions is free from taxes; special decrees of the War Department, of the Veterans Bureau, and the Department of Interior demand however that no part of the money appropriated shall be used for the purchase of oleomargarine or other butter substitutes for other purposes than for cooking.

The customs duty on oleomargarine in the Tariff Act of 1922 was 8 cents per pound, and in 1930 was raised to 14 cents. Further, in 1930 duties were placed on all oils and fats commonly used in the margarine industry In addition, further charges were placed by the Revenue Act of April 1934 on almost all the oils and fats useful for margarine industry with the exception of cottonseed oil, corn oil, soybean oil and babassu oil; these charges were in the form of an excise tax of 3 cents per pound on first domestic processing.

Under the full powers granted by the Oleomargarine Act the Bureau of Internal Revenue made on 9 April 1936 an order that on every package of oleomargarine the word " Oleomargarine " should be marked in letters of 3/4 of an inch tall. Other orders regulate advertising.

In addition to the Federal Government measures there existed in the middle of 1936 in all states, excluding Arizona, state regulations of some kind or other concerning margarine, and in many cases these alone or in conjunction with the Federal measures were so severe that they were in effect prohibitive of the production and sale of oleomargarine. Of the measures state excise taxes must first be considered. In June 1936 eight states imposed taxes of 5, 10, or 15 cents, on all margarine offered for sale, without exception. In 16 states, including all the cotton states, there were taxes of between 10 and 15 cents on all margarine which contained other than certain given home-produced raw materials or did not contain a given percentage of animal fats and home-produced raw material.

Further in 18 states a licence and a licence fee is imposed on most or all of the following concerns: margarine producers, wholesale and retail dealers in margarine, and restaurants, hotels and boarding houses which serve margarine to their guests. The licence fees are in several cases very small and are only a few dollars but in other cases they amount to a considerable sum. In the state of Pensylvania the licence fee for manufacturers is 1000 dollars, for retail dealers 100 dollars, for restaurant and hotels 50 dollars, and for boarding houses 10 dollars.

The list of government measures is not yet exhausted. In 31 states the sale of yellow margarine is prohibited, and in 20 states the use of margarine in charitable, penal, or other institutions (sometimes excepting penal institutions), receiving the assistance from the State is also prohibited. In other states hotels, restaurants, and boarding houses, serving margarine to their guests have to notify the guests that it is margarine.

It is easy to see the purpose of all these measures While the original intention was to protect in the first place the butter market and also the consumer of butter, at the present time measures taken have in addition the object of protecting the market for all home-produced oils and fats. Measures taken have been successful. Without them the use of margarine would in the last few years have become much more general, especially in view of the position of the market for oils and fats, and the margarine industry would have used a continously increasing amount of foreign raw materials.

The trend in margarine production is shown in table III.

TABLE III. — *Production of Butter, Oleomargarine, Lard, and Lard compound, in the U. S. A.*

(In thousands of quintals)

Year	Butter	Oleomargarine	Lard	Lard compound
1913	7,271	690	7,025	4.536
1924	9,444	1,052	12,456	3.767
1925	9,149	1,061	10,083	5,228
1926	9,194	1,100	10,541	5.174
1927	9,417	1,259	10,687	5.348
1928	9,302	1,436	11,766	5,186
1929	9,793	1,610	11,784	5.534
1930	9,598	1,477	10 632	5.494
1931	9,965	1,043	10,818	5.314
1932	10,251	922	11,172	4,288
1933	10,487	1,113	11,653	4,321
1934	10,065	1,199	9,811	5,463
1935	9,802	1,731	5,951	7,016
1936	9,639	...	7,602	...

Sources (from 1913 up to 1935) UNITED STATES DEPARTMENT OF AGRICULTURE, Oleomargarine, – Statistics of Production, Materials and Manufacture, Consumption, Trade and Prices; Washington, D. C., August, 1936. – (For 1936) UNITED STATES DEPARTMENT OF AGRICULTURE, The fats and oil situation, March 1937.

It can be seen that production decreased considerably after 1930 as the result of the intensification of state restrictions, but that it increased again after 1933 on account of the changed position of the market in oils and fats Consumption, however, varied very considerably, from one state to another. In certain states the market for margarine was completely, or almost completely, destroyed The influence of additional state taxes in this respect can be seen in table IV which shows the number of retail dealers holding a licence to sell margarine in 1928 when there were no excise taxes, and the number in the middle of 1935, when 17 states had introduced excise taxes

TABLE IV — *Numbers of Uncoloured-Oleomargarine Retail Dealers in the U S A in 1928 and 1935*

	1928	1935
	Thousands	Thousands
In 6 States taxing all oleomargarine 6 to 15 cents per pound	17	1
In 3 States taxing uncoloured oleomargarine 5 cents per pound	9	4
In 8 States taxing oleomargarine containing imported materials 10 to 15 cents per pound	24	21
In 31 States without excise taxes (1)	123	129
Total	173	155

Source UNITED STATES DEPARTMENT OF AGRICULTURE Bureau of Agricultural Economics State and Federal Legislation and Decisions Relating to Oleomargarine Washington, D C, June 1936

(1) Of these States, seven enacted laws imposing excise taxes between February and June 1935

TABLE V — *The Amount of the Different Kinds of Margarine Produced in the United States as a Percentage of the Total Production*

Calendar Year	Oleomargarine (uncoloured)			Oleomargarine (coloured)			Total
	Combined Animal and Vegetable Oil	Exclusive of Vegetable Oil	Exclusive of Animal Oil	Combined Animal and Vegetable Oil	Exclusive of Vegetable Oil	Exclusive of Animal Oil	
1922	56 3	40 1	0 2	2 7	0 7		100
1926	45 6	48 7		3 6	2 1		100
1930	27 9	67 7		2 9	1 5		100
1934	20 0	78 9		0 8	0 3		100

Source UNITED STATES DEPARTMENT OF AGRICULTURE, Bureau of Agricultural Economics, Oleo margarine, - Statistics of Production, Materials used in Manufacture, Consumption, Trade and Prices, Washington, D C, August, 1936

Grouping the states according to the size, relatively to the kind of excise tax it appears that a general sales tax of six cents is severely restrictive while a tax of ten cents and over has a prohibitive effect

The effect of the measures against the colouring of margarine can be seen in the following table

The share of coloured margarine which was already small fell in 1934 to 1-2 per cent, and the share of margarine made from vegetable oils and fats continuously increased Since 1925 margarine made from animal fats only has no longer been shown At the time of writing this article there are no data on the

TABLE VI — *Fats and Oils (excluding milk) used in the Manufacture of Oleomargarine in the United States*

	Animal fats and oils					Vegetable oils			Other fats and oils (1)
	Oleo oil %	Lard neutral %	Oleo stearine %	Oleo stock %	Butter	Coconut %	Cotton seed %	Peanut %	%
Year beginning July									
1913	47	19	1		5	(2)	19	3	6
1919	29	12	1	2	2	26	13	15	(2) —
1920	21	13	2	1	1	41	8	7	3
1921	25	17	3	1	1	36	10	7	
1922	26	17	3	1	1	37	11	1	
1923	25	16	3	1	1	41	10	3	(2)
1924	24	14	3	2	1	43	11	2	(2)
1925	22	12	2	1	1	46	12	3	1
1926	22	11	2	1	1	49	11	2	1
1927	18	10	2	1	1	56	10	2	(2)
1928	16	8	2	(2) —	1	60	10	2	1
1929	15	7	2	(2) —	1	62	10	2	1
Calendar year									
1930	14	5	2	(2)	1	64	10	2	2
1931	10	5	3	(2)	(2) —	70	8	2	2
1932	7	6	2	(2) —	(2)	74	9	2	(2)
1933	8	5	2	(2)	(2	75	9	1	(2)
1934	10	3	2	1	(2) —	57	25	1	1
1935	6	1	1	1	(2)	56	32	1	(3) 2
1936	5	1	1	1	(2) —	46	33	1	(4) 12

Source 1913 and 1919 up to 1935 UNITED STATES DEPARTMENT OF AGRICULTURE, Oleomargarine, — Statistics of Production used in Manufacture, Consumption Trade and Prices, Washington, D C August, 1936 1936 UNITED STATES DEPARTMENT OF AGRICULTURE, The Fats and Oils Situation Washington, March 1937

(1) Includes negligible quantities of cream reported 1913 14 to 1916-17, and unnamed oils in 1920 21, 1934 35, and edible tallow, and the following oils corn soybean, mustard, palm, sesame, palm kernel, sunflower, and babassu as reported (2) Less than one half of 1 per cent — (3) Includes 1 percent babassu (4) Includes 5 per cent babassu oil, 5 per cent soybean oil, and 1 per cent palm kernel oil

effect of the measures taken in the last few years that would allow us to say whether they will lead to a new increase in the amount of margarine containing partly animal oils and fats.

The change from animal to vegetable raw materials is seen even more clearly from table VI. While in 1914 animal fats made three quarters of the oils and fats used by the margarine industry, in 1919 they made only 46 per cent. and the percentage continuously decreased until in 1936 it finally reached 8 per cent. The increasing use of vegetable oils was concentrated mainly on coconut oil. This oil had the advantage over most other foreign raw materials of the margarine industry that it could be imported from the Philippine Islands and other possessions of the Unted States and was not therefore subject to customs duty. Coconut oil represented in 1932 75 per cent. of the total oils and fats used by margarine. After 1933 the percentage decreased, principally as the result of the excise tax of 3 cents per pound, while the use of cotton-seed oil further increased.

In addition to coconut oil and cotton-seed oil two other oils have become important in margarine production in the last two years, namely soyabean and babassu oil. Soyabean oil, which was first used in 1934 and was in 1935 only

TABLE VII. — *Fats and Oils Used in the Lard Compound Industry of the United States.*

	1932 %	1933 %	1934 %
Cotton-seed oil	86.1	87.7	87.2
Peanut oil	0.4	0.3	0.7
Coconut oil	0.9	0.7	0.7
Corn oil	0.3	0.1	0.2
Soybean oil	0.5	0.1	0.2
Rapeseed oil	...	...	0.0
Palm oil	2.3	2.2	1.4
Sesame oil	0.8	0.8	0.4
Sunflower oil	...	0.3	0.1
Other vegetable oils	0.1	...	0.1
	91.4	92.2	91.0
Lard	0.6	0.3	0.2
Edible animal stearin	1.8	1.8	1.8
Oleo oil	0.1	0.0	0.1
Edible tallow	4.7	4.8	6.0
Marine animal oils	0.2	...	0.0
Fish oil	1.2	0.9	0.9
Total	100	100	100

Source: U. S. DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS, Animal and Vegetable Fats and Oils, – Production, Consumption, Imports, Exports and Stocks, Quarterly for Calendar Years 1930 to 1934; Washington, 1935.

½ per cent. of the total used, represented in 1936 5 per cent. of the total. Babassu oil, which is imported free from Brazil under a Trade Agreement signed on 1 January 1936 and remaining in force for three years, and which is not subject to excise duty, has been used by the margarine industry since 1935. Until then it was practically unknown in the United States. In 1936 babassu oil made 5 per cent. of the oils and fats used by the margarine industry and a further increase is to be expected.

With the further increasing use of cotton-seed oil, of large quantities of soyabean oil, peanut oil, and corn oil the share of home-produced oils and fats in the total fats and oils used as raw material in the margarine industry, which fell from 74 per cent. in 1919 to 25 per cent. in 1933, increased again to 47 per cent. in 1936.

Table III shows the trend also in the production of lard compound which is similar to that of margarine production. There are only insignificant changes to be recorded concerning the raw material used in this case. The most important raw material has, since the first decade of the century, been cotton-seed oil. In 1912 this made almost 93 per cent. of the total oils and fats used. At the present time the percentage is nearly the same. In contrast with the margarine industry the lard compound industry uses but very small amounts relatively of fish and whale oils.

TABLE VIII. — *Per Capita Consumption of Butter, Oleomargarine, Lard, and Lard Compound in the U. S. A.*

Calendar year	Butter kg	Oleomargarine kg	Lard kg	Compounds kg	Total kg
1913	7 53	0 73	5 17	4 35	17 78
1920	6 71	1 54	6 03	3 04	17 33
1921	7 35	0 91	5 13	3 22	16 60
1922	7 76	0 77	6 44	3 04	18 01
1923	8 12	0 91	6 94	2 90	18 96
1924	8 21	0 91	6 99	3 22	19 32
1925	8 93	0 91	6 03	4 45	19 41
1926	7 94	0 95	6 17	4 35	19 41
1927	7 94	1 04	6 26	4 45	19 69
1928	7 80	1 18	6 07	4 26	19 91
1929	7 89	1 32	6 49	4 19	20 19
1930	7 85	1 18	6 26	4 45	19 73
1931	8 17	0 86	6 53	4 26	19 82
1932	8 21	0 73	6 89	3 40	19 23
1933	7 98	0 86	6 71	3 45	19 01
1934	8 17	0 95	6 17	4 13	19 41
1935 (1)	7 80	1 36	4 17	5 53	18 87

Source: UNITED STATES DEPARTMENT OF AGRICULTURE, Bureau of Agricultural Economics, Oleomargarine, — Statistics of Production, Materials used in Manufacture, Consumption, Trade and Prices; Washington, D. C., August, 1936.

(1) Preliminary.

As we have shown there are many factors affecting the trend of margarine production and consumption in the United States. Under the conditions created by the state regulation the price relation with butter still appears in spite of everything to be of overwhelming importance. Though only a small proportion of the output of margarine is coloured margarine yet this is used as, so to say, "spread for bread". Use of margarine as fat for cooking and baking should not be so great, as for these purposes a large supply of two other home-produced fats, lard and lard compound, is generally available at more advantageous prices.

TABLE IX. — *Average Price of Butter and Oleomargarine in the U. S. A.*

Year	Butter, 92° New York cents per pound	Oleomargarine, nut, Chicago cents per pound
1920	61.4	28.8
1921	43.3	22.0
1922	40.7	19.4
1923	46.9	20.2
1924	42.6	21.1
1925	45.3	21.3
1926	44.4	21.5
1927	47.3	17.9
1928	47.4	17.3
1929	45.0	17.5
1930	36.5	16.9
1931	28.3	12.7
1932	21.0	8.8
1933	21.7	8.2
1934	25.7	9.1
1935	29.8	12.6
1936	33.0	15.3

Source: UNITED STATES DEPARTMENT OF AGRICULTURE, Bureau of Agricultural Economics, The Fats and Oils Situation; Washington, March 1937.

Germany. — The output of margarine in Germany, which in 1913 was between 2 and 2.2 million quintals, increased to 3.4 millions in 1924 and then to 4.37 millions in 1928, and to 5.1 millions in 1932. Under the Fat Regulation plan of 23 March 1933 which aimed at the increase of home-production and reduction of imports there was imposed a production quota fixed at about 60 per cent. The law provided directly for the use of home-produced fat and at the same time for an admixture of home-produced lard in margarine production and further introduced an excise duty on margarine in order to weaken the competitive power of margarine. The production of artificial fat was limited at the same time.

The amount of lard to be admixed was fixed at first for the months of November and December 1933 at 5 per cent. of the total output of margarine and then at 10 per cent. for January 1934, at 12.5 per cent. for the period February to September 1934 and 10 per cent. for October 1934. In November 1934 this provision for mixing of lard was abolished.

The system of a production quota was administered at first through the Central Oils and Fats Office. Later the duty of fixing quotas was transferred to the central organisation of the margarine and artificial fat industries created by an Order of 23 July 1934, an organisation which is under the general control of the Minister for Food and Agriculture. The output of margarine fell in 1933 to 4.05 million quintals and in 1934 to 3.82 million quintals In 1935 the output during the period from January to September was even less than in the previous year but in the last quarter of the year the quota was raised again as a result of shorter supplies of butter and other fats, and the total production for 1935 finally reached 4.07 million quintals. Production in 1936 further increased for the same reasons.

As a result of the decrease in the output of margarine it became necessary to assure a supply of fats at low prices to the poorer classes of the community. These questions were solved firstly through the introduction of various kinds of margarine with fixed retail prices for the cheapest kinds, and secondly, through the introduction of a fat supply at reduced prices, for certain categories of consumers, and the limitation of the supply of cheap margarine to certain classes of people.

TABLE X *The Trend of Fat Consumption in Germany* (1) *expressed in terms of Pure Fat* (2)

Products	1000 quintals		kg per head		kg per consumption unit	
	1909-13	1935	1909-13	1935	1909-13	1935
Butter	3,570	4,200	5.4	6.4	6.6	7.3
Fat pork and lard	3,920	3,670	6.0	5.5	7.2	6.3
Edible tallow	350	350	0.5	0.5	0.6	0.6
Margarine	1,680	3,490	2.6	5.2	3.1	6.0
Vegetable table-oils	1,000	1,450	1.5	2.2	1.8	2.5
Unmixed vegetable edible fats	200	400	0.3	0.7	0.4	0.8
Total	10,720	13,710	16.3	20.5	19.7	23.5
Index figure *1909-13* *100*	*100*	*128*	*100*	*126*	*100*	*119*

Source Dr H. v. d. DECKEN, Die Verschiebung beim Nahrungsmittelverbrauch seit der Vorkriegszeit Die Ernahrung, Zeitschrift für das gesamte Ernahrungswesen, Band II, Heft 3, Leipzig 1937

(1) Present area (2) In order to allow the computation of a total figure, the individual figures are expressed in terms of pure fat To arrive at a figure expressed in terms of pure fat the following deductions are made Butter, 15 per cent., fat pork and lard, 25 per cent.; edible tallow 20 per cent.; Margarine, 16 per cent, imported fat pork, 15 per cent, imported lard, 5 per cent.

The most important fact concerning the future development of the German margarine industry is that in spite of the measures taken up to the present time with the object of increasing the home production of fats, home production covers only 55 per cent. of the need for food-fats, and that there are severe difficulties in the way of a further increase of fat production (1). In these circumstances an adequate fats supply is inconceivable independently of a large output of margarine.

The trend of the consumption of fat per head of the population in Germany has been as follows:

TABLE XI. — *Consumption of Fats in Germany in Kilogrammes per Head* (1).

	1913	1932	1933	1934	1935
Butter	6.2	7.2	7.3	7.2	7.4
Fat pork and lard	7.4	7.8	7.4	7.1	6.4
Margarine, artificial food fats and vegetable fats	3.3	9.3	7.6	7.4	7.3
Table oil	1.5	2.0	1.9	1.8	1.8
Total	18.4	26.3	24.3	23.5	22.9

TABLE XII. — *Fats and Oils used in the Margarine and Food Fats Industries of Germany*

Raw materials	1928		1933	
	1000 quintals	%	1000 quintals	%
Premier jus	104	2.48	48	1.22
Oleomargarine	85	2.03	14	0.35
Lard	45	1.07	57	1.45
Other animal fats	4	1.10	20	0.51
Pressed tallow	3	0.07	-	..
Total animal fats	241	5.75	139	3.53
Hardened marine animal oil	659	15.74	1,536	39.05
Hardened vegetable fats	912	21.78	443	11.26
Coconut fat	862	20.58	484	12.30
Palm-kernel fat	358	8.55	468	11.90
Palm fat	50	1.19		...
Soybean oil	442	10.55	465	11.82
Ground-nut oil	425	10.15	262	6.66
Cotton-seed oil	22	0.53	-	...
Sesam oil	12	0.29	—	...
Linseed oil	—	...	64	1.63
Other vegetable oils and fats	205	4.80	73	1.85
Total vegetable oils and fat	3,288	78.51	2,259	57.42
General total	4,188	100.00	3,934	100.00

Source: Statistisches Jahrbuch fur das deutsche Reich.

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(1) BACKE, Warum wurde eine neue Regelung des Fettverbrauchs und Fettbezuges notwendig? Der Vierjahresplan, Zeitschrift für nationalsozialistische Wirtschaftspolitik, 1. Jahrgang, No. 1, Berlin 1937.

United Kingdom of Great Britain and Northern Ireland. — The margarine supply in Great Britain and Northern Ireland, almost half of which came from imports in the pre-war years, became after the war more and more independent of imports. These imports came almost entirely form the Netherlands and fell continuously from 667,000 quintals in 1924 to 9,100 quintals in 1935. Since 1934 the amounts of exports, itself not large, was greater than the amount of imports.

The trend in margarine production and consumption in Great Britain is particularly interesting since in this case production and consumption have not been subject to limitations similar to those imposed in other countries. The relations of the price of margarine to that of other fats and the purchasing power of the consumer determined the trend. Thus, it was the result of the fall in butter prices that the consumption of butter continuously increased after 1929 while margarine consumption decreased. Following the change in the market position margarine consumption increased again after 1935. In contrast with the output of margarine, the output of lard compound increased even during the crisis; the increase was particularly great, however, after the reduction of the import of lard in 1935 determined by the small output in the United States.

TABLE XIII. — *Production and Consumption of Margarine and Lard Compound in the United Kingdom.*

Year	Production	Exports	Retained imports	Available for consumption in the United Kingdom
	(In thousands of quintals)			
	(a) *Margarine*			
1907	448	9	446	885
1912	818	14	684	1,488
1924	1,864	22	667	2,509
1930	2,040	47	428	2,430
1933	1,753	18	16	1,751
1934	1,543	16	10	1,537
1935	1,779	20	9	1,768
	(b) *Lard compound.*			
1924	(1) 256	22	41	275
1930	452	30	37	458
1933	560	18	8	550
1934	574	20	5	559

Source: Final Report on the Third Census of Production of the United Kingdom (1924), London, 1931. — Final Report on the Fourth Census of Production (1930), London, 1934. — Report on the Import Duties Act Inquiry (1934), Part I. London, 1936. — Board of Trade Journal, No. 2105, 8 April 1937.

(1) So far as recorded separately.

TABLE XIV. — *Trend of Prices and Consumption of Butter and Margarine in the United Kingdom.*

Year	Trend of prices (1)				Consumption per capita (2)	
	Salted butter per pound		Margarine per pound	Price of butter as per cent. of price of margarine	Butter	Margarine
	s.	*d*	*d.*		*kg*	*kg*
1919	1	10 3	7 3	305 48	8 —	5.85
1930	1	6 7	7 3	256 16	8 48	5 35
1931	1	3 6	7 1	222 54	9.48	4.67
1932	1	2 4	6 8	213 33	9.84	4 17
1933	1	0 4	6 1	203 28	10 66	3 81
1934	0	11 4	5 6	203 57	11 43	3 58
1935	1	0 6	5 4	233 33	11 43	3.81
1936	1	1 8	5 8	237 93	—	3 90

(1) Compiled from the *Ministry of Labour Gazette.* — (2) *Société des Nations, Le Problème de l'Alimentation,* Volume IV, statistique de la production et de la consommation et des prix, documentation préparée par l'Institut International d'Agriculture; Genève, 1936.

TABLE XV. — *Oils and Fats used in the Manufacture of Margarine in the United Kingdom by Reporting Firms* (1).

(In thousand of quintals).

Constituents	1927	1928	1929	1930	1931	1932	1933	1934	1935
Vegetable oils and fats									
Coconut	447	569	579	457	457	367	285	244	315
Ground-nut	173	183	315	325	285	122	132	112	81
Cottonseed	203	173	162	193	152	132	51	152	122
Palm kernel	224	142	112	183	112	183	142	163	163
Soybean	122	112	41	61	71	142	142	71	122
Sunflower seed	--	61	112	41	31	112	71	—	—
Miscellaneous	20	20	20	41	20	30	20	31	30
Total	1,189	1,260	1,341	1,301	1,128	1,097	843	773	833
Animal oils and fats									
Oleo	92	61	71	51	31	21	21	10	31
Stearin	20	20	20	31	31	31	31	41	30
Butter	10	10	10	10	20	20	10	10	10
Premier jus	20	20	20	10	20	20	20	20	31
Lard	31	31	31	20	10	10	10	—	—
Total	173	142	152	122	112	102	92	81	102
Whale-oil	254	295	295	325	345	467	569	518	559
Grand Total	1,616	1,697	1,788	1,748	1,585	1,666	1,504	1,372	1,494

Source: IMPERIAL ECONOMIC COMMITTEE, Vegetable oils and oilseeds, London 1936.

(1) Compiled from returns from manufacturers responsible for about 90 per cent. of the total production.

The kinds of raw materials used in the production of margarine and lard compounds are shown in Tables XV and XVI. The most important change to be noticed is the absolute and relative increase in the use of whale-oil associated with a decrease in the use of, firstly, vegetable fats, and, secondly, animal fats.

TABLE XVI. — *Oils and Fats used in the Manufacture of Lard Compound in the United Kingdom by Reporting Firms* (1)

(In thousands of quintals).

Constituents	1927 (2)	1928 (2)	1929	1930	1931	1932	1933	1934	1935
Vegetable oils and fats:									
Cottonseed	122	112	142	142	142	142	163	213	203
Ground-nut	51	61	61	71	102	92	91	102	153
Soy-bean	51	61	61	61	61	92	92	61	132
Palm	(3) —	(3) -	21	21	20	20	20	20	31
Palm kernel	10	10	10	10	10	10	(3) —	(3) —	(3) -
Miscellaneous	(3) —	(3) —	(3) —	(3) —	(3) —	10	20	10	20
Total	234	244	295	305	335	366	386	406	539
Animal oils and fats (principally stearine)	10	10	10	10	10	10	10	10	10
Marine oils (almost entirely whale)	51	61	61	61	71	71	81	92	193
Grand Total	295	315	366	376	416	447	477	508	742

Source: IMPERIAL ECONOMIC COMMITTEE, Vegetable oils and oilseeds; London, 1936.

(1) Compiled from returns from manufacturers responsible for about 85 per cent. of the total production. — (2) Incomplete; omits one firm included in 1929 and subsequent years. The firm consumed about 2,000 tons of oils and fats in 1929 — (3) Less than 500 tons.

Denmark. — The output of the Danish margarine industry reached a record level in 1930 with a production of 826,000 quintals of margarine, 4,650 quintals of palmin and 15,400 quintals of lard compound. The increasing difficulties in the way of butter exports that arose in the following years followed by a considerable fall in butter prices, weakened directly, and indirectly as a result of government measures, the competition of margarine with butter. The output of margarine fell to 717,000 quintals in 1934, but later there was again an increase. The market position for butter improved slowly and the special measures to check margarine production were not renewed when the law expired at the end of November 1934.

Among the raw materials used by the margarine industry animal oils and fats are, as in other countries, of small relative importance, as can be seen from table XVII. Among vegetable oils and fats coco-oil is of chief importance. The amount of this oil used fell till 1932 in both relative and absolute amounts, declining from 63.5 per cent of the total oils and fats used in 1924 to 32.7 per cent. in 1932; after that time it increased both relatively and absolutely and represented about 37 per cent. of the total in 1935. The considerable increase in the use of hardened animal oil (hardened whale-oil) and soybean oil in the last few years should be noticed.

The trend of butter and margarine consumption was as follows:

Year	Kilogrammes per Head	
	Butter	Margarine
1913	—	15 6
1920	5 9	22 6
1930	6 1	22 6
1931	6 8	22 1
1932	8 5	20 5
1933	9 6	20 5
1934	9 0	19 6
1935	9 5	21 2

The Netherlands. — The development of the margarine industry in the Netherlands in the last few years has been determined by two different facts, first the position of the butter market and the resulting government measures and second the decline in the important margarine export trade

The increasing difficulties that have been in the way of the exports of butter and other dairy products since 1929 led, finally, to a very difficult position in the highly developed milk industry. Finally, on 10 July 1932 was passed the Milk Crisis Law of which one object was to assure to the milk industry a larger home market by means of restricting the competition of other fats with butter. The law imposed, among other things, an excise duty on all fats, including butter, the proceeds of which were to be used for the supporting of the milk industry. Margarine was subjected to the following regulations:

1. From 1 July 1932 margarine sold on the home market had to have an admixture of a given percentage of butter. The percentage was fixed at first at 25 per cent. and remained at this figure until 16 September 1935 with the exception of the period 3 April 1933 to 3 July 1933 when it was 40 per cent. and from 13 January 1935 to 6 May 1935 when it was 15 per cent. Then it was reduced to 10 per cent.

2. The same excise duty is payable on butter to be mixed with margarine as is payable on other butter for home consumption. This tax was at first 42 cents per kilogramme, was increased at the end of July 1932 to 55 cents and then was continually increased until it reached one gulden on 12 March 1933. After that the tax was varied slightly up and down according to the market position. Up to the middle of 1936 it fluctuated between 85 and 110 cents, and in the following months was temporarily reduced to 75 cents and in April 1937 to 70 cents.

TABLE XVII. — *Raw Materials used by the Margarine Industry in Denmark* (1).

(In quintals).

	1922	1924	1928	1932	1933	1934	1935
Oleomargarine	8,728	13,220	8,174	8,320	6,870	2,870	1,350
Animal stearin	2,923	1,262	589	480	530	670	620
Premier jus etc	21 596	25,189	28,885	28,010	28,530	35,910	32,460
Neutral lard and other pork fats	5,061	5 094	5,636	6,830	7,360	17,580	4,530
Lard compound	165	—	5	30	20	20	240
Coco-nut oil	294,991	373,013	285,988	199,240	215,490	228,580	240,810
Palm fat	7,084	2,711	35 451	26,690	10,750	15,420	27,420
Ground-nut oil	17,328	28,061	35,936	20,930	15,960	11,800	11,590
Cotton-seed soil	40,234	22 256	43,689	21,190	8,540	12,400	4,190
Sesam oil	42,353	41 396	37,430	35,790	35 600	33,130	33,980
Soybean oil	21,239	38,577	42,671	63,220	79,380	82,840	97,460
Sunflower seed oil	—	18,229	13,212	18,640	7,330	180	6,320
Other vegetable oils	286	—	2,428	3,490	2,550	4,340	4,880
Hardened animal oil	8,305	8,700	67,748	109,680	153,540	115,060	146,640
Hardened vegetable oils		10,208	31,596	67,800	46,530	34,260	32,690
Total	470,193	587,018	630 528	610,340	619,080	595,060	645,180

Source: Danmarks Produktionsstatistik.

(1) With the exception of milk, salt, and other small amounts of fat and butter and some other materials

3. Margarine may only be put on the market on the payment of a tax. This tax is not the same for all kinds of margarine. For the usual kind it was fixed at first at 15 cents per kilogramme but was later increased or decreased according to the size of the quota for butter mixing. When this mixing quota was reduced to 10 per cent. on 16 September 1935 the tax was increased to 46.5 cents and on 11 November 1935 it was fixed at 39 cents per kilogramme. Until the middle of 1936 it fluctuated about this figure. It was then, however gradually reduced until it reached 33.75 cents at the end of January 1937. From February it was again increased by small stages until it reached 42.7 cents on 30 May 1937.

TABLE XVIII. — *Production and Export Surplus of Butter and Margarine in the Netherlands.*

(In 1.000 quintals).

Year	Butter		Margarine	
	Production (1)	Export surplus (2)	Production (3) (1)	Export surplus (4)
Average 1921-25	...	260	1,114	779
1926	830	440	1,336	937
1927	851	461	1,401	921
1928	853	446	1,392	885
1929	867	453	1,320	720
1930	872	399	1,271	686
1931	848	289	1,110	543
1932	852	161	627	156
1933	881	277	517	116
1934	(5) 905	364	525	92
1935	(5) 962	466	532	58
1936	(5) 1,013	602	555	70

Source: Maandschrift van het Centraal Bureau voor de Statistiek.

(1) Net weight. — (2) Gross weight. (Net weight = gross weight less 9 per cent). — (3) Output of margarine factories. Excluding butter used in the production of, or mixed with, margarine. — (4) Gross weight. (Net weight = gross weight less 15 per cent.). — (5) Excluding output of butter for own consumption for which there are no figures. This output was estimated a 23,000 quintals for 1934, 48,000 quintals for 1935 and 20,000 quintals for 1936.

4. In 1933 an agreement with the margarine industry limited the sale of margarine in the Netherlands to a weekly amount of 1,050 tons.

5. As these measures necessarily involved an increase in the price of margarine it was prescribed that the margarine industry should produce a given quantity of margarine without an admixture of butter, so called People's Margarine, for sale to the poor classes of the population at a fixed price.

Further measures regulating margarine output came in 1935. From 1935 the margarine industry had to use oil and fat raw materials produced in the Netherlands or the Netherlands Indies to an amount of at least 60 per cent. of the

TABLE XIX — *Consumption of Butter and Margarine in the Netherlands*

Year	Consuption of butter		Consumption of Margarine		Consumption of butter and margarine together (2)	Consumption per head of population				
						Butter		Margarine		Butter and margarine together kg
	a (1) 1 000 quintals	b (1) 1 000 quintals	a (1) 1 000 quintals	b (1) 1 000 quintals	1 000 quintals	a (1) kg	b (1) kg	a (1) kg	b (1) kg	
Average 1921 25	445	—	—	453	898	6 3	—	6 3	—	12 6
1926	430	—	—	552	974	5 8	—	7 4	—	13 2
1927	432	—	—	617	1 043	5 7	—	8 1	—	13 8
1928	447	—	—	647	1 087	5 8	—	8 4	—	14 2
1929	455	—	—	718	1,616	5 9	—	9 2	—	15 1
1930	510	—	—	701	1 206	6 5	—	8 9	—	15 4
1931	585	575 - 580	655 - 660	653	1,234	7 3	—	8 2	—	15 5
1932	705	637	563	495	1 200	8 7	7 8	6 9	6 1	14 8
1933	626	468	578	419	1 045	7 6	5 7	7 0	5 1	12 7
1934	605	474	577	446	1 051	7 3	5 7	6 9	5 4	12 7
1935	529	441	572	486	1 013	6 3	5 3	6 7	5 7	12 0
1936	480	434	536	489	969	—	—	—	—	—

Source · *Maandschrift van het Centraal Bureau voor de Statistiek* 1927, No 4 1931 No 4 1935, No 4, 1936, No 5, 1937 No 4

(1) *a* Including butter which after 1932 had to be mixed with margarine, *b* Excluding butter which after 1932 had to be mixed with margarine — (2) The total consumption of butter and margarine given in column 6 differs from the total of columns 2 and 5 since before 1932 margarine factories also used butter for the manufacture of margarine The amount used during the period 1921 31 varied between 3,000 and 8,000 quintals, and this amount should be deducted from columns 2 and 5 to arrive at the total consumption

total oils and fats used. Further, for January and February 1935 the use of marine-animal oil in margarine production was forbidden.

The effects of these measures are of particular interest, because there were strictly applied measures which had in part been definitely disapproved in other countries. It is however not easy to make a clear picture of the effects of the particular measures from the facts available which are given in the accompanying tables.

The consumption of butter decreased from year to year after the coming into force in 1932 of the measures mentioned above; consumption had increased considerably after the decrease in the butter price in 1930 and in 1932 had reached a record figure of 705,000 quintals. In 1936 the total butter consumption, including the butter mixed with margarine, was 480,000 quintals. While this decrease was taking place exports were increasing, and in 1935 the export surplus of butter reached a record figure and there was a further and considerable increase in 1936.

Margarine consumption decreased after 1929 in consequence of an increase in butter consumption. After the introduction of margarine regulations, there was a further decrease in 1932 and 1933. But from 1934 there was a slow increase in consumption.

TABLE XX. — *Average retail Price of Butter and Margarine in Amsterdam.*

(Cents per ½ kilogramme).

Year	Butter	Margarine
1925	132.5	60
1926	117	60
1927	119	60
1928	123.5	60
1929	123	60
1930	104	60
1931	88	55
1932	80.5	47
1933	95	58
1934	88.5	59
1935	90.5	59

Source: Jaarcijfers voor Nederland: 1930, S 117; 1933, S 138, 1935, S. 138.

The consumption of butter and margarine together tended until 1932 to increase considerably as a result of falling prices. It now appears that the charges imposed in 1932 through various measures on butter and margarine had the result that the consumer used partly other oils and fats not subject to such large charges. The decline in butter and margarine consumption continued in 1936. The increasing use of other oils and fats was partly due to the fact that production of margarine in the home in order to avoid the paying of the excise duty gradually extended. In order to check the substitution by consumers of other fats the

TABLE XXI. — *The Consumption of Artificial Food Fats, Lard and Food Oils in the Netherlands.*

(in 1000 quintals).

	Artificial food fats, not including margarine		Lard		Food oils		Total	
	1935	1936	1935	1936	1935	1936	1935	1936
1st half-year	54.1	64.6	3 9	2.4	19.2	25.9	77.2	92.9
2nd »	48.0	86.3	3.0	3.4	28.3	52.0	79.3	141.7
3rd »	63.6	60.1	3.4	1.1	25.7	18.3	92.7	79.5
4th »	61.2	68.3	2.9	1.6	20.1	23.4	84.2	93.3
	226.9	279.3	13 2	8.5	93.3	119.6	333.4	407.4
Weekly average . . .	(1) 4.4	(2) 5.3	(1) 0.3	(2) 0.2	(1) 1.8	(2) 2.3	(1) 6,4	(2) 7,7

Source: De Landbouw-Crisismaatregeln hunne Werking en Uitvoering XIII, Driemaandelijksch Verslag aan de Staten-Generaal (Oct., Nov., Dec. 1936).

(1) 52 Weeks. — (2) 53 Weeks.

TABLE XXII. — *Raw Materials used in and Output of the Margarine Industry in the Netherlands.*

(In 1,000 quintals)

Year	Oils and fats used			Output	
	Animals oils and fats (1)	Vegetable oils and fats (2)	Butter	Margarine (including added butter)	Fats for cooking and baking and other refined fats
Average 1921-25 . .	335.1	776.2	3.9	1,115.0	171.0
1926	260.7	1,182.2	8.0	1,343 8	285.9
1927	297 5	1,132.0	6.5	1,407 8	323.7
1928	395.4	1,175.1	6.7	1,399.3	358.2
1929	499 9	1,001.4	6.7	1,327.2	377.9
1930	710.4	682 7	5.0	1,276.1	319.0
1931	511.7	620.2	4.3	1,112.8	203.9
1932	212.0	351.4	55.0	681.5	393.0
1933	224.6	242.1	(3) 125.4	642.2	378.0
1934	201.7	272.1	(3) 105.4	630.0	406.0
1935	120.8	388 4	(3) 71 9	604.0	686.0
1936	118.1	408.1	(3) 37.7	593.0	664.0

Source: Maandshcrift van het Central Bureau voor de Statistiek, 1927, N° 4, 1931, N° 4, 1934, N° 5, 1935, N° 4, 1936, N° 5, et 1937, N° 4.

(1) Oleomargarine, premiers jus, neutral lard, mutton jus, stearine, pressed tallow, hardened marine animal oils, etc. — (2) Including small amounts of vegetable and animal fats and oils. (Average 1921-25, 3,400; 1926-30, 1,300; 1931-35, 1,700 quintals). — (3) A part of the butter mixed with margarine is added in special factories. According to the figures given by the Central Butter Office of the Netherlands the total amount of butter added to margarine was 159,000 quintals in 1933, 130,000 in 1934, 88,000 in 1935 and 46,000 quintals in 1936.

tax on compounds and food oils was increased on 22 September 1935 from 24 to 30 cents per pound and the tax on the import of food oils, excluding olive oil, was increased to 40 cents per kilogramme. But as can be seen from table XXI this increase proved to be insufficient. The use of other oils and fats and also the production of margarine in the home further increased. Therefore on 2 July 1936 the taxes on other food fats and food oils were increased to 40 cents per kilogramme.

With the available data it is only possible to analyse the kinds of raw materials used in the margarine industry of the Netherlands under the heads of animal and vegetable materials. (See table XXII). Further the use of raw materials composed of fish- and whale-oils and fats is not separately shown but included with other animal fats.

Other countries. — The regulation of margarine production in **Czechoslovakia** by the Government Law of 12 March 1934 was discussed in the previous article. The production of margarine was limited at first to 520,000 quintals in 1935, later however a further quota of 75,000 was allowed and the total production in 1935 was 603,000 against 698,000 quintals in 1934. For 1936 a quota of 650,000 quintals was established, and 30 per cent. of this must be supplied as People's Margarine at a fixed price and 40 per cent. produced within certain price limits. In the third quarter of 1936 this quota was raised.

One aim of the Law of 12 March 1934 was to increase the use of home-produced raw materials in the margarine industry. Thus, in 1935 the margarine industry was obliged to use 143,000 quintals of home-produced rape-seed oil and 600, quintals home-produced soybean oil, at a fixed price. A similar provision was made for 1936 and 1937. According to the Law of 23 June 1936 a special tax has to be paid after 7 July 1936 on the production and the import of artificial fats and oils which compete with animal fats. This was fixed at 70 kronen per quintal for food oil, at 60 kronen for margarine and similar fats, and at 30 kronen for raw materials of the margarine industry.

The importance of margarine in the fats supply of Czechoslovakia at the present day can be seen from the fact that at the time of the reduction of output in 1935 the consumption of margarine and artificial fats was 4.3 kilogrammes per head of population while butter consumption in the same period was 6.7 kilogrammes per head.

Margarine consumption in **Sweden** has been checked since 1933 by a tax which at the end of September 1936 was 30 øre per kilogramme. Production increased again after 1932 and was in 1935 558,700 quintals against 497,000 in 1931 and against the earlier maximum of 552,400 quintals in 1929.

In **Norway** even after 1934 use was made of the powers granted by the law of 24 May 1931 to fix a quota of butter to be mixed with margarine. The quota was so fixed as to make it possible to absorb the surplus butter production in the margarine industry. The size of the quota therefore fluctuated very considerably. It was highest in the summer of 1935 when between 17 April and 13 June it was 17 per cent.; it was then reduced until it was five per cent. between 14 October 1935 to 20 January 1936, and subsequently increased again to 13 per cent and finally to 17 per cent After falling to 9 per cent it was again increased on 1 February 1937 to 17 per cent

The tax on margarine introduced by the law of 29 June 1934 amounted to 20 ore per kilogramme when the butter mixing quota was 5 per cent For every one per cent increase in the amount of butter to be mixed over 5 per cent the tax was to be reduced by one ore By the law of 21 June 1935 the tax was fixed at 10 ore per kilogramme when the butter quota was 10 per cent with a provision that it should be one ore greater or less according as the butter quota decreased or increased

The output of margarine in Norway after the introduction of the law on butter mixing and special margarine taxes continuously increased In 1936 it was 553 000 quintals

TABLE XXIII *Fats and Oils Used in the Margarine Industry in Norway*

(In quintals)

	1926	1927	1929	1931	1933	1935
Oleo stock and oleo oil	111 3[illegible]0	44 230	26 380	22 060	15 970	8 140
Neutral lard	2 710	5 000	3 720	2 510	1 100	110
Oil from cotton seed sunflower groundnuts and other seeds	166 860	94 100	97 580	101 190	82 930	76 780
Palm kernel fat palm fat and coconut oil		173 400	202 600	188 820	198 770	195 780
Hardened whale oil		42 830	62 870	78 370	90 150	110 180
Other hardened oils						7 030
Natural butter	2 670	4 780	3 780	4 180	30 500	49 040

Source Norges Industri Produktionsstatistik

In **Russia** manufacture of margarine was begun in 1930 With the enlarging and modernising of the oil industry above all of the refining and hardening plants, production increased considerably In 1931 also production of compounds was begun and in 1934 this production exceeded that of margarine Margarine output in 1934 was 328,000 quintals and that of other artificial food fats 360,000 quintals

The output of margarine in **Belgium** after falling in 1932 again increased in the following years In 1935 came various measures inimical to the margarine industry and in 1937 a production quota was established Production in 1935 was 458,000 quintals against 282,000 in 1932, and 493 000 quintals in 1929

In **Finland** output increased further in 1933 in spite of a tax on margarine. This tax at first, on 29 December 1934, was 2 Finmarks per kilogramme In April 1935 it was raised to 3 Finmarks but then on 22 October 1935 it was reduced to 1 Finmark on account of the change in market conditions The output of margarine was in 1934 82,600 quintals against 100,300 in 1929

Also in **Japan** production of margarine was started. The output tended to increase but is even so less than the output of butter. In 1934 output was 16,300 quintals while at the same time butter output was estimated to be 25,000 quintals.

On the development of margarine production in **other countries** (France, Austria, Switzerland, Hungary, Poland, and Italy) there are no reliable data. Production in all these countries taken together is however small; in 1935 it was estimated at 100,000 quintals. How true this figure is it is impossible to say here.

H. BÖKER.

SURVEY OF THE RECENT AND PRESENT POSITION OF AGRICULTURE IN PORTUGAL

SUMMARY Regions and crops – Estimates and views on Portuguese agriculture before the war – Agriculture after the war - Cereal growing - Vine growing - Potential agricultural capacity of Portugal Present position of agriculture — Land improvement by irrigation, etc schemes and achievements

Regions and Crops.

The Portuguese Republic, which occupies one seventh part of the Iberian peninsula, with an area of 8,910,640 hectares, has an area of some 6,500,000 hectares under cultivation.

It is a country of increasing population, by reason of the high birth-rate, which in the decade 1919-29 was 38.8 per thousand inhabitants, and in spite of the high mortality, which for the same period was reckoned at 20.8 per thousand. The density of population is 71 persons to the square kilometre; the maximum density occurs in the North, where the average is as high as 91 and the minimum in the South, where it is only 30.

All these figures indicating the relative density of the population are correlated with the distribution of property and the intensity of cultivation; in fact, it is in the North that property is most subdivided and intensive cropping prevails while in the South there is a prevalence of latifundia and extensive cultivation.

Portugal appears to be naturally divided into the following regions the two which form the area historically known by the designation " Entre Douro e Minho ", a region of intensive cultivation where maize growing is predominant; and the Traz-os-Montes region where stock farming predominates and where the growing of cereals is combined with that of potatoes; the region of the basin of the Douro, famous for its vine yards; that of Beira (Upper, Lower, Littoral and Transmontane) which includes all the basin of the Mondego and part of the upper course of the Tagus; this is a zone of highly developed and flourishing agriculture and is densely populated; the Estremadura region which occupies the greater part of the basin of the Tagus and the Lisbon peninsula, a zone of vine and cereal cultivation as well as of stock farming; the region of Alemtejo; and lastly of Algarve, in the extreme south, a mountainous zone, specially adapted to the cultivation of olives and fruits, mainly citrus fruits.

This last region is one of typically Mediterranean agriculture. Atlantic climate prevails and rain is violent and irregular. Owing to the variations ranging from the very wet climate of the North, where the minimum rainfall is calculated at 800 mm., to that of Alemtejo and Algarve, where it scarcely reaches 350 mm., the river system is also of irregular character, the streams being almost all of torrential type, useful for manufacturing purposes but difficult to employ for irrigation.

Some 60 per cent. of the population of Portugal are engaged in agriculture, but in spite of this and of the fact that the chief economic resources of the Republic are derived from the soil, agriculture is not highly developed. The explanation of this backwardness lies in various adverse factors: the irregularity of the rainfall, the nature of the land available, the inadequate and antiquated implements, etc., employed traditionally by the farmers and, above all, the unequal distribution of property over the greater part of the national territory.

The distribution of the cultivated areas and its percentages in respect to the whole area under cultivation have been approximately calculated as follows (1):

	Square kilometres	Percentage
Maize	3,762	4.2
Wheat	5,918	6.6
Rye	1,480	1.6
Oats	1,655	2.0
Barley	777	0.8
Rice	113	0.1
Vines	3,500	3.8
Olives	3,500	3.8
Fruits	1,300	1.4
Other crops	900	1.0
Fallow lands	13,400	15.1
Woods and forests	23,350	26.3
Land not in cultivation	29,028	33.3

Portugal is an agricultural country par excellence and not only its permanent resources but also the key to its internal stability and independence are to be found in agriculture. The heavy weight of the country's financial commitments abroad can be relieved only by means of the increase of agricultural production, directed by preference towards the crops and types of farming for which Portugal is best fitted naturally.

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(1) Only in the figures of this table the peninsular territory and the territory of the Azores and Madeira are combined.

Among Portugal's main sources of wealth is her fishing industry which is fairly well developed and flourishing, owing to its excellent position in respect to the international markets, especially the British. Then there are certain kinds of cultivation which, although formerly yielding scarcely enough for internal requirements, are capable of increase and improvement. The principal among these are cereal cultivation and vinegrowing.

Portuguese Agriculture before the war.

(1) *Cereal cultivation.* — It is not easy to state with absolute precision the extent of the area effectively devoted to wheat-growing in Portugal.

Up to the period of the war and during the war, statistics were not exact and it is only possible to state by way of estimate that the area devoted to cereal-growing was somewhere between 350,000 and 450,000 hectares and that the production varied from a minimum of approximately 2,300,000 hectolitres in 1915-16 to a maximum of 4,100,000 hectolitres for the season 1910-11, the average yield was about 5.7 hectolitres per hectare cultivated.

The prevailing cereal in the South of Portugal is wheat, in the North of the country, as in the neighbouring Spanish region of Galicia and in Asturias, it is maize.

Wheat is grown on thinly populated lands where the holdings are as a rule little split up and the cultivation is usually of the extensive type On the contrary maize is typical of the densely populated regions, where holdings are much split up and cultivation intensive

Maize is of first importance in the food supply of the Portuguese peasant and workman, especially because of its cheapness, in addition, it is much used as a fattening feed for animals, and on account of its cheapness forms an advantageous substitute for other supplementary feeds for the farm animals, especially for pigs, being fed either in grain or as meal, maize stalks form an excellent feed for sheep, so much so that in some parts it is the usual feed for this class of stock. For maize, as for wheat, however, Portugal continues to depend on imports from abroad and this to the extent of a fifth part of the total national production.

It will be shown later that, thanks to the agricultural policy of the last few years, this deficit in production is being made good and it is hoped that is will almost completely disappear when the whole irrigation scheme planned by the Government is in full working order

On the other hand, whereas for wheat there is a certain sustained increase alike in the area and in the yield, for maize there was noted in the pre-war years a progressive decrease both in the area under cultivation and in the production.

In 1905, for example, the production of maize was equal to and even exceeded that of wheat, and in spite of the protection enjoyed by wheat to the disadvantage of maize, the latter cereal was grown on an area of over 400,000 hectares and represented an average harvest of more than 5,000,000 quintals; subsequently however the area cultivated in maize was systematically reduced till in 1915 it was rather over 200,000 hectares with a total production of 3,500,000 quintals.

This decrease--explained by some as due to the increase in the consumption of wheat flours for bread making and to the substitution of green fodder for the feeds of which maize bran forms the basis—had a serious effect on the economy of the Northern regions, in the agriculture of which maize was a predominant factor and difficult to replace. Strictly speaking however there must have been other causes for this decrease, seeing that, in those same years, although there was a certain shrinkage in internal consumption, it remained so much in excess of the volume of national production as to make it essential to increase imports, thus rendering more unfavourable than before the balance of external trade.

Fortunately this tendency to reduce maize cultivation was vigorously combatted and gradually checked and even an increase in production secured

Rye, the characteristic cereal of the regions of harsh and variable climate, of hilly country and poor soil and of large undivided holdings, has followed the same fortunes as maize, that is to say, its cultivation diminished from the beginning of the century till the European war. From various sources figures are obtained showing the area devoted to rye in Portugal in 1902 to have been 300,000 ha. and the production about 2,800,000 quintals, while in the years immediately before the war, the area cultivated did not attain 200,000 hectares and the production was not more than 1,000,000 quintals.

Later it will appear that, although areas under rye have not increased, tending perhaps to decrease, the productivity has improved up to nearly 9 quintals per hectare, thereby ensuring sufficient harvests for the national requirements.

It is clear that an increase could be effected in the growing of rye which is frequently the only crop that succeeds on certain poor soils of Portugal, it forms also an excellent additional feed for live-stock.

Formerly barley was grown on a larger scale than oats, in the first years of the century the reverse began to be observed, and whereas there was a shrinkage in the areas under barley, that under oats was seen to be expanding for the whole country and this went on until the years immediately before the war Thus in 1916, as compared with a production of 1,158,794 hectolitres of oats, the barley crop scarcely reached 421,289 hectolitres, this change is to be explained, among other reasons, by the fact that it costs less to grow oats However this low figure touched in the period immediately before the war may be said to be the lowest for barley, the national consumption of which was even then greater than production, and the uses of barley (including the brewing industry, still in its infancy) make it possible that there will be an increase in sowings of this cereal.

The cultivation of rice in Portugal was at no time sufficient for consumption requirements, although for a long time past anxiety has been displayed by the agricultural authorities for the intensification of rice-growing, which is to some extent connected with the problems and possibilities of irrigation, etc.

In 1916 the rice harvest yielded some 200,000 quintals of rice, or about fifty per cent. of the national consumption.

In concluding these remarks on Portuguese cereal cultivation as carried on before the planned efforts for the reconstruction of agriculture and agricultural economy undertaken about ten years ago and intensified in these last five years, it may be stated that cereal production in the period immediately before the war represented some 642,000 metric tons, while imports amounted to about 150,000 tons of cereals.

(2) *Vine-growing and Wine-making.* — The leading agricultural production of Portugal is vine-growing. It is the one that employs most labour and the largest capital, and it contributes to the balance of payments the proceeds of a constant and assured export.

In Portugal the natural conditions are the best possible for vineyards, and the production is not affected, as that of cereals, by the weather conditions, which occasion serious fluctuations in the cereal harvests from one year to another.

From this immunity of the production and its relatively satisfactory economic conditions the national economy, and especially in its social aspect, has always benefited.

The basins of the Douro and of the Tagus are the best areas for vine-growing; nearly all the exportable wines are produced in one of these areas, both wines for blending and fine quality wines.

At the beginning of the century, the cadastral services calculated the lands devoted to vine-growing as 313,165 hectares, or 4.5 per cent. of the productive area, a percentage only surpassed by Italy among the other producing countries.

The districts in which vineyards occupy the largest area were in 1920, and continue to be at present with slight variations, as follows: Lisbon, Braga, Vizeu, Santarem, Oporto, Leiria, Villa Real, Guarda, Vianna do Castelo and Faro. In relation to the total area of the respective district, the order is as follows: Braga with 19.2 per cent., Lisbon with 12.64 per cent., Vianna do Castelo with 14.78 per cent., Oporto with 14.15 per cent. and Villa Real with 12.33 per cent.

In regard to vine-growing, Portugal might be divided into 12 agricultural regions. Some of these regions are officially delimited for the effective protection and defence of the typical wines, as for example that of the Douro whence originates the wine which is universally renowned under the name of " port ", together with the excellent table wines known by the appellation of " virgin wines of the Douro ".

The most productive is the region of Bacia and of the Tagus basin, where the extensive plantations of vines attain and sometimes exceed a million stocks and the productivity attains levels unsurpassed in any other part.

In concluding this examination of Portuguese agricultural production in the period before the great reforms of agriculture and agricultural economy were initiated, this production may be estimated at a value of about 250,000 contos, or 250,000,000 milreis; of which total, 35 per cent. represented the earnings of labour.

This review, although not more than superficial, of the national economy and the agricultural situation is enough to give an idea that the rural economy is at present very far from meeting all the requirements of the country in basic foodstuffs; an adverse balance of trade in respect of cereals and livestock is offset mainly by the wine output.

Potential Agricultural Capacity of Portugal.

From all we know of Portuguese agricultural we can conclude that there is a vast area of uncultivated land in Portugal, that the working of the lands is seldom intensive, that knowledge of agricultural science is scarse, and that the exploitation of the hydraulic resources of the country is unsatisfactory. A recognition of these conditions leads to the conviction that the actual effective production is very far below the productive capacity, whereas the potential capacity of the Portuguese soil is very high. Of the 8,910,640 hectares which represent the mainland area 8,500,000 hectares are cultivable, the remaining 410,640 constituting the area built over, used for roads, etc., and that part which is not capable of cultivation. At the present time the area in production is about 6,100,000 hectares. Thus, if the area capable of cultivation and production is estimated at 8,500,000 hectares, Portugal may count on an additional 2,300,000-2,400,000 hectares to be farmed, that is to say, the productive area may be expanded by one third and the national zone of cultivation may finally represent 95.40 per cent. of the total area of the country.

An all important question connected with that of the extension of the cultivated area, with that of the intensive cultivation urged for certain products, as, for example, the cereals and, first and foremost, wheat, and with the increase of certain types of production still little developed and of excellent possibilities (such as olive, certain fruits, vegetables, forage crops, etc.), is that of the expansion of irrigated lands, and in its turn this question, long discussed in Portugal and only now in the way of gradual realisation, is intimately related to the problem of irrigation waters, the basis, together with the campaign for wheat growing and that for the protection of vine growing of the agricultural policy of the Portuguese Government.

In the first serious studies made in regard to the general schemes for the transformation of agriculture by means of irrigation, it was calculated that the area which could be devoted to irrigated crops and capable of being irrigated, was 2,300,000 hectares, or 25 per cent., of the total area, of this total, at the present time, only 870,000 hectares are under irrigated crops.

On the other hand there was a general conviction among those concerned that the Portuguese agricultural problem was above all a problem of irrigation.

Considering that, by the first stage of the works required, there could be converted into irrigated land 200,000 hectares of dry land, the champions of the irrigation schemes claimed that there would be an increase of 3,000,000 milreis on a single harvest of average type.

The fact that the prosperity of Portugal is, owing to the nature of the country, intimately associated with the agricultural industry is not to be interpreted in the sense that the other industries are not to reach the maximum of their prosperity. The need for co-ordination derives from the importance for the economic development of Portugal of the use of hydraulic motive power which can distribute electric energy to various points of the country, and so compensate in part for the want of coal and facilitate industrial and commercial progress by the production of light, heat and motive power. By benefiting industry and transport this would tend to further the development of agriculture, not only through the replacement of animal traction by machinery but also through the encouraging of irrigation which, mainly in the South of Portugal, represents the only remedy for combatting the great enemy with which agriculture in that region has to contend, *viz.*, drought. In accordance with the new policy of reconstruction, financial assistance is to be given by the State for the achievement of these objects, since the expenditure which this work represents, heavy as it is, none the less will in the end increase the national wealth and the national income.

Present Position of Agriculture.

With a view to estimating with the help of numerical data the endeavours made by the rural classes to second the official policy through the new corporative bodies which organise Portuguese agriculture and which co-ordinate from the standpoint of the common national interest the general and special initiatives and schemes, a brief survey will now be attempted of the present state of agricultural production, limited to those products already considered above.

The significant data will afford also some idea of the effect on Portuguese international trade of the State protectionist policy and agricultural policy in general, which aim at rendering the nation independent in respect of raw materials and at adjusting the balance of trade, by cutting out certain items of imports which can be replaced by the increase of national production.

According to the figures of the " International Year-book of Agricultural Statistics " of this Institute, for 1934-35, the area devoted to wheat in Portugal was 543,956 hectares as compared with the 437,688 which represent the average for the period 1926-30; the production was 6,719,650 quintals as compared with the average of 2,840,434 quintals; the yield per hectare rose from 6.5 quintals in 1926-30 to 12.4 in 1934-35. As might be expected the imports showed a corresponding decline over the same period, *viz.* from 1,943,045 quintals (including wheat flour) to 255,188 quintals.

This increase in wheat production came to be regarded as excessive being due to the exceptional continuance of the optimum conditions and accordingly of seasons of maximum production In November 1934 the Government already recognised the necessity of imposing a check on the advance in order to prevent the increase of the stocks which, on the completion of the 1935 harvest, were found to total 1,230,000 quintals. With a view to the removal of the difficulties resulting from this state of affairs, the Decree of 12 August 1935 was enacted which rendered compulsory the declaration of harvests, placed the trade in wheat in the hands of the National Federation of Wheat Growers and at the same time made provision for the issue of warrants to farmers with excessive production, up to 70 per cent. of the value of their crop.

On the other hand, the State and the corporative organisations are endeavouring to restrict imports which in the years 1932 to 1935 tended to exceed the requirements of the internal market, and although the promotion of a regular wheat export is in no way part of the policy, temporary measures are being taken to encourage exports so as to balance excessive imports.

In regard to maize the figures are also significant, but in another sense, as will be seen. In fact, in the four-year period 1926-27 to 1929-30, the average area devoted to the cultivation of maize was 348,450 hectares and the production 3,727,000 quintals, in 1934-35 the maize area increased to 425,860 hectares and the production fell to 3,042,980 quintals, the average yield, which in the earlier period had been 10.7 quintals per hectare, fell in 1934-35 to 7.1 per hectare. The external trade followed a parallel course, with the export almost nil and with an import varying from 639,168 to 751,180 quintals.

Some allusion has previously been made to this phenomenon of decline in maize production and it may be stated that the increase in wheat production and the consequent larger consumption of wheat flour are to some extent due to the advantageous price of wheat, on the other hand, the very fact of the neglect into which the intensive cultivation of maize has fallen explains (apart from other more complex reasons of a technical nature) the decline in productivity. In any case, it appears that the associations of maize growers are making efforts to remedy the deficit in production, especially after measures were taken to limit the production of wheat which rivals maize as one of the most widely cultivated crops.

In regard to oats, the areas under this crop show no increase from 1930 to the present time, but there has been increase in productivity, the yield having risen from 4.6 quintals per hectare to 6.9 with consequent increase in production from an average of 832,945 quintals to 1,116,310 in 1934-35; this figure however is not to be considered as normal, since it is greatly in excess of the production of any previous year. In the 1933-34 season the production was, on the contrary, exceptionally scanty, being the lowest for the whole of the past two decades: *viz.*, 527,772 quintals with a yield of barely 3.2 quintals per hectare. In any case, the production of oats does not, from the economic standpoint, represent a problem, as there is a certain stable, or at least easily secured, equilibrium between production, consumption and trade.

The area under barley is becoming restricted, but not the consumption, as a branch of which the brewing industry is beginning to gain importance. This industry was hitherto almost non-existent in Portugal, possibly on account of the protection accorded to the wine-making industry. The averages in respect of barley growing for 1926-30 were 70,824 hectares and 401,612 quintals with a yield of 5.7 quintals; the corresponding figures in 1934-35 were: 50,190 hectares, 440,739 quintals and a yield of 8.8 quintals per hectare. This last however was not a sufficiently high yield, as it rendered necessary an import of nearly 14,000 quintals, a quantity which possibly will be exceeded in subsequent years owing to the increase in consumption due to the growing importance of the brewing industry.

The production of rye, like that of oats, is properly balanced and kept within the due limits of the present internal requirements; the area cultivated has decreased in comparison with the average of the last five year period and the yield has increased from 6 7 to 8.9 quintals per hectare, resulting in an advance in production from 1,109,688 to 1,247,910 quintals, while the area declined from 164,642 to 140,755 hectares. The import and export figures for rye are so small as not to call for mention.

As in the case of wheat, there is excess of production from vine-growing and a serious fall in values. The area under vineyards has undergone but little variation from 1929 to the present time, but the production of table grapes increased from the average of 10,818,636 quintals for the period 1926-30 to 13,031,000 quintals in 1934-35. That of wine grapes increased from an average of 6,047,038 to 10,804,713 quintals. Export of table grapes rose from 37,943 to 54,232 quintals, but on the other hand the export of wine, which in 1926-30 was 1,000,000 hectolitres, declined and finally was hardly more than 700,000.

The foundation of the corporative organisations—Federation of the Vine-growers of the Centre and South of Portugal, Guild of the Merchant Exporters of Wine, Corporation of the Growers and Exporters of the Oporto wines, and the Syndical Federation of the Vine-growers of the Douro Region–has served to bring about the practical regulation both of wine production and also of its internal and international trade

One of the measures taken was the destruction of the inferior wines, either with compensation to those affected by the loss, or regarding the quantities destroyed as the producer's corporative contribution. The elimination of the wines made from grapes produced from grafted hybrid stocks was calculated as affecting 100,000 casks of 600 litres in all and the surplus was estimated at 200,000 casks.

However, the scanty vintage of 1935, the quotas imposed for the importation of Portuguese wine into certain countries (in particular, into France), and the measures taken by the Government and by the corporative organisations, have relieved the situation of the existing stocks, but have not checked the progressive decline of prices.

Among the legislative provisions of interest is that of 28 January 1935 which prohibits the planting of new vineyards, although actually this has not strictly applied as have been the other measures relating to vine cultivation and to trade in wine and to its utilisation for the obtaining of by-products.

The greates joint effort made by the vine growers, has been made in the region of the Douro, where the organisations have effectively controlled production and protected the pure genuine product and international trade in it. The central body, the previously mentioned Syndical Federation of the Vine-growers of the Douro Region (commonly known as " Casa do Douro ") was declared to be a corporative organisation, by the Law of 10 January 1935. To give an idea of the importance of this organisation, which carries out the provisions of the law, some figures, are subjoined which clearly show the activity of this organisation. Up to 1934 the " Casa do Douro " had granted warrants to the extent of 12,600,000 escudos on port wine. For the purchase of ordinary table wines of the vintages 1932 and 1933, the same body expended 33,512,000, escudos and distributed the brandies produced by distillation of these wines (10,230 casks) among the farmers with a view to utilisation in the manufacture of their wines. More than 20,000 vine growers have been assisted by the technical services of the Federation in other types of activity. In 1935 the Casa do Douro limited the manufacture of port wine to 70,000 casks; this limitation was dictated by the excess of stocks and the desire to avoid congestion of markets and lowering of prices.

Land Improvement by Irrigation.

The irrigation of the various regions presents a more serious problem from the economic and social aspect than on the technical side since, if on the one hand it involves the preliminary study of the actual and possible physical features, rainfall, and irrigation facilities, of these regions, it demands on the other a close acquaintance with the population, production, internal and external trade and transport, and the social and political organizations; in short, a knowledge of the so-called human geography of these regions.

Seeing that all financial operations connected with land settlement or repopulation are long term investments bearing a low rate of interest, they are very seldom suitable for private investors, either as regards the amount required or the duration of the loan, which can hardly be expected to mature during the lifetime of the investor. Such operations, therefore, are of interest only to the State, since the State is benefited by the increased value resulting from land improvement in public and private property (at least four times its original value) and in production; by the development of trade and the increased volume of business and the consequent increase in the public revenues in respect of taxation, etc.; by the establishment of new industries strictly dependent on agriculture; and by the consequent increase in the population. Finally, for a country like Portugal, which still owns the fourth largest colonial empire in the world, the most important advantage is the excellent example set by such undertakings and the experience gained from them, which can be turned to account in the overseas possessions (1).

For the above reasons, both general and particular, the Portuguese Government established on 8 September 1930 the " Autonomous Committee for Agricultural Irrigation Works ", which was dependent on the Ministry of Public Works and Communications and was entrusted with the duty of carrying out the policy of the Government in respect of irrigation. This Committee was reorganised a year later in accordance with a Decree, and subsequently modified by successive measures until it assumed its final form as established by the measure of 16 February 1935.

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(1) See RELATORIO 1935. ESTUDOS, PROIECTOS, E CONSTRUCCION. Committee for Agricultural Irrigation Works. Portuguese Republic, Ministry of Public Works and Communications, Lisbon 1936.

On 28 February 1930, authority was given for the issue of a loan of 100,000 *contos* (1) for use during the first ten years of the plan (1931-1941).

The first general scheme drawn up by the Committee was vague, fragmentary and extremely costly; hence Ministerial measures were introduced in January 1935, providing for the preparation of a concrete plan calculated to ensure speedy returns, so that its practical and economic result should act as a stimulus in this first phase of agricultural irrigation in Portugal.

A general map was therefore prepared showing the possibilities of irrigation over a total area of 400,000 hectares, together with a definite scheme of the irrigation financially possible, covering an area of 168,505 hectares. From the second area some 80,000 hectares were selected for immediate operations, and grouped into 16 section, at a total expenditure estimated at 500,000 contos. The preliminary studies, the organisation of the plans and the works to be undertaken in each of these 16 sections constituted the plan of 1935, which was to be carried out within the seven-year period 1935-41.

In order to give an idea of the rate at which the studies and the works proceed the total expenditure up to the end of 1935 is given below.

Up to the end of 1934, for studies, plans, machinery, buildings, etc.		21,456,923.66
During 1935	studies and plans	5,608,459.69
	buildings, etc.	4,862,434.76
	General total to end of 1935	31,927,818.11

Apart from rice, the cultivation of which has already been increased from an average area in 1926-30 of 13,054 hectares to 22,892 in 1934-35, with a corresponding increase in production from 213,866 to 547,461 quintals, the crops which it will be possible to grow on the irrigated zones according to the 1935 plan, are the following:

Pasture and fodder crops	28 %	23,240 hectares.
Fruit-trees	20 %	16,000 »
Products at present imported	52 %	43,160 »

By increasing the production of fodder, it would be possible to develop stockbreeding, which is by no means satisfactory at present. State assistance, particularly financial assistance is necessary for fruit-growing as fruit-trees are not immediately productive.

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(1) The *conto* is equal to 1,000 milreis.

The possibilities of irrigation in Portugal are given below:

Zones to be improved	Area for irrigation (hectares)
Velga de Chaves	2,000
Campos de Vilariça	700
Vale do Vouga	25,000
Campos de Burgãis	185
Vale do Mondego	30,000
Campos do Liz	1,000
Campos do Alcôa e Rio de Areia	500
Vale de Sizandro	500
Campina de Idanha	6,000
Vale do Tejo	35,000
Vale do Sorraia	30,000
Campos de Magos	700
Campos de Muge	2,700
Campos de Loures	700
Campos de Marateca	700
Campos de S. Martinho	500
Vale do Sado (Lower course)	6,000
Vale do Sado (Upper course)	3,500
Campos de Xarrama	1,000
Campos da Ribeira de Odivelas	1,000
Campos de Alfundão	500
Campos do Roxo	1,500
Campos de Vila Nova de Mil Fontes	3,000
Camos de Tavira	2,500
Campina de Faro	900
Campina de Silves e Portimão	2,000
Areas not specifiid	10,000
Total	168,565

The 168,565 hectares referred to above comprise the area which it is financially possible to irrigate in the near future, out of the total area of 400,000 hectares which should be irrigated. The area of 80,622 hectares for which irrigation is considered urgently necessary is divided into the following zones:

Veiga de Chaves	2,000
Vale da Vilariça	700
Burgães	181
Campos do Mondego	15,000
Campina da Idanha	6,000
Paúl da Cela	441
Campos de Alvega	500
Campos do Ribatejo	12,700
Campos de Magos	700
Vale do Sorraia	30,000
Campos de Loures	700
Vale do Sado (Lower course)	6,000
Valo do Sado (Upper course)	3,500
Campina de Silves e Portimão	1,500
Campina de Faro	700
Total	80,622

It is calculated that the total irrigable area of Portugal will, when the necessary works have been carried out, support a population of one and a half million more than the present number.

E. MARTINEZ DE BUJANDA.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

History of Economics.

MENGES, A. Geschichte und Kulturkunde des Dorfes Wallau an der Lahn. Wallau, Die Gemeinde, 1936. 468 p.

Sociology.

OWEN, L. A. The Russian peasant movement, 1906-1917 London, King, 1937. xix, 267 p.

STIERLING, G. Die Landflucht und der Einsatz von Stadtjugend in der Landwirtschaft Berlin Elsner, 1937. 104 p

Economics.

GRAUX, L Le Portugal économique. Rapport à M. le Ministre du commerce et de l'industrie. Paris, Chiron, 1937. 349 p.

ROSENBERG, E. Brotgeld, Wirtschaftspyramide und Ackergrosstadt. Ein Weg zu Reichtum und Frieden, Riga, « Walters & Rapa », 1935 160 p.

THE PROBLEM OF INTERNATIONAL INVESTMENT. A report by a study group of members of the Royal Institute of International Affairs London, Oxford university press, 1937. x, 371 p.

[Rural Economics.

HAMSCHA, H. und O. DEUTSCH. Die Aufgaben der osterreichischen Landwirtschaft. Wien, Österreichischer Agrarverlag, 1937. 177 p.

HOWALD, O. und H. BRUGGER. Grundzüge der schweizerischen Agrarverfassung. Berlin, Weidmann, 1936. 58 p. (Schriften der Internationalen Konferenz für Agrarwissenschaft (International conference of agricultural economists).)

STEPHENSON, J. Berkshire, with an historical section by W. G. East. London, Land utilization survey of Britain, 1936. 113 p. (The land of Britain. The report of the Land utilization survey of Britain, edited by L. Dudley Stamp. Part 78).

UNITED STATES. NATIONAL REOSURCES BOARD. LAND PLANNING COMMITTEE Forest land resources, requirements, problems, and policy. Washington, Govt. printing office, 1935. VII, 114 p. (Supplementary report. Part 8).

UNITED STATES. NATIONAL RESOURCES BOARD. LAND PLANNING COMMITTEE. Land available for agriculture through reclamation. Washington, Govt. printing office, 1936. V, 51 p. (Supplementary report. Part 4).

Internal Colonization.

Gessmann, A. Neuland in Österreich. Ergebnisse der am Gute Brunn am Walde durchgeführten innenkolonisatorischen Arbeiten und ertragsteigernden Massnahmen. Wien, Scholle-Verlag, 1935. 151 p.

Co-operation.

Ullah, Ata. The co-operative movement in the Punjab. London, Allen & Unwin, [1937]. 512 p.

Credit.

Pagani, L. Il credito agrario in regime corporativo. Suoi aspetti fondamentali, suo carattere reale. Venezia, Istituto federale delle casse di risparmio delle Venezie, 1937. 127 p.

Insurance.

Campopiano, R. La previdenza sociale. Manuale istituzionale delle assicurazioni sociali obbligatorie, degli assegni familiari e delle altre forme di previdenza gestite dall'Istituto nazionale fascista della previdenza sociale. Preceduto da una introduzione sulla questione sociale e da un commento sistematico e completo alla Carta del lavoro. Roma, [Tip. operaia romana], 1937, 173 p.

Commerce.

P E P (Political and economic planning). Report on international trade. A survey of problems affecting the expansion of international trade, with proposals for the development of British commercial policy and export mechanism. London, 1937. [8], 302 p.

Varna. Vische-targovsko outchilichte. Godichnik na Vischeto targovsko outchilichte. Varna, P tsa Voinikov, 1937, 125 p.
[Second title in French: Annuaire de l'École des hautes études commerciales à Varna].

Industries.

Annuario politecnico italiano. Guida generale delle industrie nazionali. XIX. Edizione 1937. Milano, [1937]. 1209 p.

Società italiana Ernesto Breda per costruzioni meccaniche, Milano. La Società italiana Ernesto Breda per costruzioni meccaniche. Dalle sue origini ad oggi, 1886-1936. Verona, Mondadori, [1936]. 140 p.

Miscellaneous.

Italie. Istituto centrale di statistica. Variazioni di territorio, di nome e di confine delle Circoscrizioni comunali e provinciali del Regno, disposte con leggi e Regi decreti emanati dal 1° aprile 1934-XII al 20 aprile 1936-XIV. Roma, Istituto Poligrafico dello Stato, 1937. 46 p.

The British Empire. A report on its structure and problems by a study group of members of the Royal institute of international affairs. London, Oxford university press, 1937. [ix], 336 p.

The colonial problem. A report by a study group of members of the Royal institute of international affairs. London, Oxford university press, 1937, xiv, 448 p.

The Japan-Manchoukuo year book 1937. Tokyo, The Japan-Manchoukuo Year Book, [1937], 1365 p.

Periodicals. (1), (2), (3).

AGRICOLTURA libica; bollettino mensile del R° Ufficio centrale per i servizi agrari della Libia, Tripoli, [Stab. pol. Ed. P. Maggi], v. 6 (1937)-, mens. L. 12. [v. 1 (1932)- v. 4 (juin 1935) under the title: « Bollettino del R° Ufficio per i servizi agrari della Tripolitania »; v. 4 (juillet 1935)- v. 5 (1936) under the title: « Bollettino del R° Ufficio per i servizi agrari della Libia »].

BRASSEUR français; organe officiel de l'Union générale des syndicats de la brasserie française et de la Chambre syndicale de la malterie française, Paris, [Imprimerie de publications périodiques], v. 1 (1937)-, bimens.

BULLETIN mensuel de statistiques coloniales. Ministère des Colonies. Direction des affaires économiques, Paris, [Imprimerie J. Dumoulin], juin, 1937-, mens.

CELLULOSA; bollettino ufficiale dell'Ente nazionale per la cellulosa e per la carta. Roma, [Tipografia de « L'Italie »], v. 1 (1937)-, bimestr. L. 50 int.; L. 100 étr.

COMITÉ cotonier congolais, Bruxelles. Bulletin trimestriel... Bruxelles, v. 1 (1936)-, trim

COMMERCIO imperiale. Confederazione fascista dei commercianti, Roma, [Off. graf. IGAP], v. 1 (1936)-, mens. L. 20 int ; L. 40 étr. [Monthly Supplement to: « Commercio »]

ECONOMETRICA; journal of the Econometric society. [Menasha, Wis , George Banta Publishing Co], v. 2 (1934)-, trim. $ 7.00.

ESPANSIONE imperiale, rassegna mensile di politica ed economia. Roma, [« Laboremus »], v. 1 (1937)-, mens. L. 50 int.; L. 100 étr.

FRÜCHTEHANDEL; Das Fachorgan der Fruchte- und Gemüsebranche für Deutschland, Europa und Uebersee Düsseldorf, [« Der Früchtehandel »], v. 21 (1937)-, hebd Separate Supplements « Der Marktbericht », « Der kluge Detaillist », « Die Verkaufskunst »].

FUTTERMITTEL-Industrie, Organ der Fachgruppe Futtermittelindustrie Halle a. S., Carl Marhold Verlagsbuchhandlung, v. 27 (1937)-, mens. RM 9 (Forsetzung der Zeitschrift « Die Trocknungs-Industrie »).

HALBJAHRSBERICHTE zur Wirtschaftslage. (Schriften des Instituts für Konjunkturforschung). Berlin, Hanseatische Verlagsanstalt Hamburg, v 12 (1937)-, sem. RM 9 [v I (1926)- v. II (1936) under the title: « Vierteljahrshefte zur Konjunkturforschung, *Teil B.* »].

(Ikonomitcheski pregled). Икономически прегледъ; органъ на Русенската търговско-индустриална камара. Русе, v. 12 (1937)-, bimens Lv. 50 int.; $ 1 étr. [Economic Review; official organ of the Roustchouk Chamber of Commerce and Industries.]

INFORMAZIONI agricole. Istituto fascista di tecnica e propaganda agraria, Roma, 1937 , mens. L. 10 [Supplement to « Agricoltura fascista »].

INSTITUT international du cinématographe éducateur. Communications Roma, Tip. R. M. Doniselli, v. 1 (1937)-, irr. [Mimeographed].

INSTITUTO cubano de estabilización del café. Boletín., Habana, [Molina y Cia.], v. 1 (1937)-, mens. gratis.

ITALIE. Ispettorato per la difesa del risparmio e per l'esercizio del credito. Bollettino dell'Ispettorato. Roma, Istituto poligrafico dello Stato, 1936-, mens. L. 40 int.; L. 80 étr.

LANDESPRODUKTEN-Zeitung, Fachblatt für Handel, Verarbeitung und Grossverbrauch. Düsseldorf, v. 18 (1937)-, hebd.

---

(1) Previous list June 1937. To be continued December 1937.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebd. (weekly); int. (home price); irr. (irregular): mens. (monthly); n° (number); N. S (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

LIBRO italiano; rassegna bibliografica generale. Pubblicazione mensile a cura del Ministero dell'Educazione nazionale e del Ministero della Cultura popolare, Roma, Libreria Ulpiano Editrice, v 1 (1937)-, L. 100 int.; L. 150 étr.; avec « Repertorio annuale » L 150 int ; L. 220 étr.

(Lozarski pregled). Лозарски прегледъ; органъ на Българския лозарски съюзъ и Кооперативната централа на лозаритѣ в България, София. Плѣвенъ, Кооп. печатница и книговезница "Изгрѣвъ", v. 20 (1935)-, 9 ou 10 fasc. p an. Lv. 50. [Wine Growing. Rewiew of the Bulgarian Wine-Growing Union and of the Central Co-operative Wine Growers

MIETITORE A cura della Confederazione fascista dei lavoratori dell'agricoltura, Roma, Società an « Arte della stampa »], v. 3 (1937)-, irr. [Supplement to: « Lavoro agricolo fascista ».

PRASA gospodarcza; dwutygodniowy biuletyn bibliograficzny Warszawa, [« Drukprasa »], v. 1 (1934), bimens. [Wychodzi przy współdziale czasopism Bank, Biuletyn Izby przemysł-handlow. w Warszawie, Drogi Polski, Polska gospodarcza, Przegląd gospodarczy, Życie rolnicze [Ecomics Press: bi-monthly bibliographical bulletin. Published in collaboration with: "Bank, Bulletin" etc.]

REICHSMINISTERIALBLATT der Forstverwaltung Herausgegeben vom Reichsforstamt und Preussischen Landesforstamt zugleich Amtsblatt der obersten Naturschutzbehörde. Berlin, [Reichsnährstand Verlag-Ges m b H], v 1 (1937)-, hebd. RM. 8.

REVISTA de comercio; organo oficial de la Secretaría de comercio, Habana, [Negociado de biblioteca, canje y publicaciones], v. 2 (1936)-, mens $ 1 00 M/O.

ROMÂNIA viticolă, revistă lunară de viticultură și oenologie, București, [Bucovina I. E Torouțiu], v 1 (1937)-, mens Lei 250

SETA; bollettino di sericoltura, organo ufficiale mensile della Federazione nazionale fascista degli industriali della seta Milano, [Stamperia e tipografia S E T I], v 43 (1937)-, L. 75 int, L 125 étr [v 1 (1908) v 43 (avril 1937) under the title « Bollettino di sericoltura » Separate Supplement, since 1937 Notiziario settimanale »]

STATISTIK des In-und Auslands (Schriften des Instituts fur Konjunkturforschung) Berlin, Hanseatische Verlagsanstalt Hamburg, v. 10 (1935)-, trim RM 16 [v 10 (1935)- v 11 (1936) under the title « Vierteljahrshefte zur Konjunkturforschung. *Teil B*. Wirtschaftszahlen des In- und Auslands »

SUGAR bulletin, [official organ of the American sugar cane league of the U S A], New Orleans, La. (Reginald Dykers), v 15 (1937)-, bimens $ 0 50

VENEZUELA. Ministerio de relaciones exteriores. Dirección de politica económica. Boletín de la Dirección.., Caracas, Editorial Bolivar, v 1 (1936)-, mens [Previous series: v. 5, nº 45-56 (1924) under the title « Boletín comercial e industrial »]

VI. Stockholm, v. 24 (1937)-, hebd. 5 kr. [v. 17 (1930)- v. 23, nº 13 (1936) sous le titre « Konsumentbladet »; v. 23, nº 14-53 (1936)- under the title « Vi. Konsumentbladet »]. [Nous].

VIERTELJAHRSHEFTE zur Wirtschaftsforschung (Schriften des Instituts für Konjunkturforschung). Berlin, Hanseatische Verlagsanstalt Hamburg, v. 12 (1937)-, trim. RM. 12 [v. 1 (1926)- v. 11 (1936) under the title « Vierteljahrshefte zur Konjunkturforschung. *Teil A*. »].

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

CROP FINANCE

SUMMARY I *General considerations.* The consequences of the crisis in agriculture aggravated by the lack of organisation by farmers in respect of the sale of their products Necessity for working capital to allow farmers to cover their working costs during the whole production period and to avoid the necessity for a quick sale of their products immediately after the harvest. General lack or insufficiency of such capital Subsequent requirements for crop finance. Definition of crop finance Its function in steadying the market Interest particularly of the large numbers of small producers in such financing Legal regulation concerning loans against pledge made under the latest laws System of guarantees under laws in France, Italy and England — II. *Situation in certain countries* Argentina, France Italy Poland Other countries (Greece, Romania, Uruguay, and Columbia)

I. — General Considerations.

Although it had almost everywhere the same essential causes, the agricultural crisis had different characteristics and repercussions in the various countries according to the extent of the technical, economic, and commercial organisation of agriculture and its financial resistance. It is not necessary to study here, although it would be very interesting, the way in which the various agricultural economies met the difficulties created by the crisis, the systems and means adopted, and the results obtained. However, it is generally agreed that the crisis would have had in certain countries less disastrous results if, among other things, farmers had been better prepared and the sale of their products better organised. In fact, while associations concerned with production and technical matters have grown and continue to grow appreciably in importance, this cannot be said of associations concerned with the handling, marketing, and prices of products, the sale of which is still effected by elementary methods. This appears all the more important if it is borne in mind that the large majority of farmers are small producers generally without experience in and means for trade and, as a result, are easy prey to speculative intermediaries.

The bad organisation of the sale of products has, without doubt, disastrous consequences for the producer and certainly represents a social loss (1). The unregulated supply of agricultural products, not responding to the needs of the market and associated with a relatively inelastic demand, produces those violent fluctuations in prices which constitute one of the main disturbing factors in agriculture.

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(1) Prof. CARLO DRAGONI: Economia agraria. Milano, Hoepli, 1932.

Farmers who have often to pay the rent for their farm and harvest expenses as soon as the crops are harvested are obliged to sell their products at a time when similar products, coming from a great number of other farmers who are in the same position, flood the market and inevitably produce the collapse of prices. The result is that sometimes the returns from the sale are not sufficient to cover the costs of production and the farmer after considerable labour finds himself finally obliged to incur a debt in order to provide for the maintenance of himself and his family.

In fact, the funds to finance crops should be provided by an adequate working capital because the farmer recovers the expenses involved in a year's production only at the moment when the production of a crop is finally completed, namely during the following year. Working capital for a farm should therefore cover the costs of production during two distinct phases.

The first phase corresponds to the period between the moment when expenses of production are first incurred and the harvest. The second corresponds to the period between the harvest and the sale of the crops.

The first phase depends only on the conditions under which crops are produced. Here there are many factors to be considered, the quality and fertility of the soil, the position of the farm, weather conditions, etc.

The second depends on one hand on the movement of market prices a rise in which induces the farmer to sell his products and a fall impels him to keep them off the market; it depends, on the other hand, on the reserves of working capital which make it possible for the farmer to spread the sales of his products fairly evenly over the whole year.

For given farming conditions there is an optimum period for this second phase. If working capital reserves are not available to the farmer over this period he is obliged to provide himself with funds by loans and this is the use of credits for crop finance (1).

These credits consist in an advance to the farmer of sums to replace for the time being those which he could obtain by the disposal of crops whose sale he is spreading over a period (2). Such credits are issued against promissory notes or warrants. The warrant is a note on security and is transferable by endorsement; it describes and gives the value of the goods backing the loan and gives to the lender a first class security. By the use of such a warrant the owner of goods being in temporary need of money can at once contract a loan of the necessary funds and so avoid selling the goods constituting the security; these goods in fact remain in the possession of the borrower (1). Its legal character is that of a kind of mortgage against movable goods.

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(1) For a study of the financing of an important world crop, *i. e.* cotton, see THE FINANCING OF THE GROWING AND MARKETING OF COTTON *Monthly Bulletin of Agricultural Economics and Sociology*, January 1936. International Institute of Agriculture, Rome.

(2) LOUIS TARDY, Directeur général de la Caisse nationale de crédit agricole (Paris): Le financement des récoltes Report presented at the Vth International Conference of Agricultural Credit, Vienna, 9-11 September 1936.

If this credit instrument were not available, the farmer in need of money would have to have recourse to one of three means: he can either sell his output at whatever price he can get, or he can borrow on a simple note of hand backed only by personal security which lenders generally consider insufficient; or finally, he can mortgage such real estate as he has the good fortune to possess incurring for an ordinary short term loan the heavy expenses of an attested acknowledgement of debt.

The need to make possible the disposal of agricultural products in a rational way and for remunerative prices, in other words to prevent by spread sales the flooding of the market, and to adjust supply and demand, has recently been more and more recognised.

Advances on crops have from their beginning had the object of preventing precipitate sales and so reducing the excessive supply at the most critical time of the year. In this way the falling of prices below the average or equilibrial level is avoided and so the market is more quickly stabilised than it is by means of a slow absorption of surplus supply. Stabilisation is the more rapid the closer is the amount of the products against which credits are issued to the amount of the surplus supply.

Further, while being advantageous for producers these credits are not opposed to the interest of consumers. In their absence it generally happens that prices fall as a result of surplus supply even below the costs of production, and rise later. This while being disadvantageous for farmers favours the intermediaries who make a profit out of temporary disequilibrium, and does not benefit the consumers who, as experience has shown, have to pay for the same products retail prices proportioned not to the average wholesale prices during the period of disequilibrium but to the higher prices which later rule on the wholesale market.

As this condition has been characteristic during the post-war period of the trade in the principal agricultural products it must be recognised that advances to farmers have exercised a beneficial influence not only from the economic but also from the social point of view. They aim in fact at maintaining especially the class of small farmers (2), which is not able to dominate the market but which has to submit to it; this class is very numerous and in view of the considerable contributions which it makes to the total output of agricultural products should not be sacrificed.

It is for this reason that to the traditional agricultural credit system has been added the branch with which we are now concerned, and which has spread slowly but steadily since its fairly recent beginning. It concerns the most important agricultural products which are not subject to government price fixing or monopoly.

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(1) J. CARRET: Le nouveau régime des warrants agricoles. Besançon, Jacques et Demontrond, 1936.

(2) LUIGI PAGANI: Importanza delle anticipazioni sui prodotti agricoli Istituto Federale delle Casse di Risparmio delle Venezie. Venezia, 1936.

This form of advances against the security of products requires the solution of technical, financial, and legal problems. For its operation it is necessary first to provide storage, warehouses, refrigerators, and, in general, equipment required for the conservation of agricultural products; there must also be available the necessary funds for the current financing of crops; these resources can be of a fairly large amount, above all when, as is most often the case, the products concerned are most important not only in price but also in value. In such case the loan operations are beyond the ordinary resources of the banks and have serious repercussions on public finance. But public finance, on the other hand, cannot be disinterested in the commercial realisation of the crops on which frequently depends the welfare of the whole community. As an example may be cited the disastrous consequences in Brasil which would have resulted from the lack of a systematic policy in respect of coffee.

The predominant tendency of today is to defend the market of the principal agricultural products in which are interested not only those particularly concerned in the trade in these products, but also the community as a whole. In this respect a credit system aiming at steadying the supply and stabilising prices is of primary importance.

The legal aspect of the granting of loans against pledge as this operation has been developed in the most recent legislation, has a particular interest. It would be outside the limits of this present article to examine exhaustively this aspect of the question. We will point out only that agricultural credit laws have frequently departed from traditional legal principle according to which in order to give validity to a loan contract the possession of the goods given as security had to be transferred to the creditor, and instead created a loan system where the security remained with the borrower. In other words, it was recognised that the guarantee given by security against the loan should be made in such a manner as to avoid the dislocation of agricultural operations, a dislocation that inevitably was produced if agricultural implements or livestock or, in our case, agricultural products, were transferred to a public or private depository. Then there was introduced a special form of loan against movable goods which while creating charges against these goods to secure the financial transaction yet left them in the possession of and available for use by the farmer. There were however attached severe penalties to be applied if the goods given as securities were sold without the consent of the creditor.

But as regards this guarantee, systems vary according to the different legal traditions. The most developed example of bills backed by agricultural products is to be found in France. In that country as in Germany and a number of Latin American countries a system of agricultural loan has been adopted, which does not require the transfer of the possession of the goods given as security. Italy has introduced a system of preference rights, legal or conventional, Great Britain and Northern Ireland has preferred to adopt a system of a charge on goods, a charge either simple or floating.

In order that there shall be a valid charge on the security it is necessary however to replace the act of dispossession by a legal act giving to the security a defined form and avoiding the possibility of fraud and litigation. This act consists in the registration of the giving of security in a special register called generally register of agricultural pledges and kept by the registrar of mortgages.

In Italy there have been since 1884 proposals to introduce into agricultural credit operations a system of security by a charge on implements and livestock and on products, without dispossession. The legislator has solved the problem in a manner favourable to the farmer by adjusting the system of preference rights; this system is established in two forms, one legal and the other conventional. Agricultural credit operations are by law guaranteed by a preference right which gives to the lender in respect of the goods backing the credit (the products of the land in the case of a loan raised for the purposes of production, cattle or instruments in the case of a loan raised to buy these) a prior claim over any other creditor. A decree law in 1928 introduced a modification to the original decree of 1927 and made this system less strictly that of an impersonal goods security in respect of crops; according to the 1927 decree, in the case of a bad harvest, credits could be carried over into the following seasons even if the owner of the farm had changed in the meantime; according to the new decree, on the other hand, the carrying-over of the charge to the crops of the second year is admitted only when the land is cultivated by the person who obtained the loan The conventional charge is an accessory form of security by which the farmer can reinforce the legal charge If the loan is granted to permit the cultivation of the land, and is consequently guaranteed by a legal charge on the products, the farmer can in order better to guarantee the loan contract a charge also on his cattle. The contract charge is, in short, an agricultural pledge which does not give possession to the lender and is regulated as such. It has in fact to be made by a written document which should be duly registered on a special register held by the registrar of mortgages

Another interesting case of the legal regulation of advances against security is provided by the English law of 3 August 1928. This law allows the security of goods in the form of a fixed or floating charge in the case of farm credit operations. This kind of guarantee was previously unknown to English law concerning agricultural products. According to these laws the farmer could offer to credit institutions from which he asked for loans only personal security or a charge on real property in the case that he himself was the owner of the land. According to the new law, on the other hand, the farmer is entitled to offer also a charge on the products and equipment of his farm and this charge is made without the goods constituting the security being removed from the farm to which they belong. The security follows the type of the English property charge in the form of either a floating or a fixed charge; in the first case the charge is on one or more given objects belonging to the farm concerned; in the second case the charge is general on all the objects or on one or more categories of goods belonging to the farm; in the first case the charge is direct and the creditor can consequently demand that all the money banked by the debtor shall be reserved to the repayment of the credit; in the second case the charge is general but can however be converted to a fixed charge in certain given circumstances, for example in the case of the bankruptcy of the farmer. The result in any case is the same obligation for the debtor which derives from a fixed charge and which directs all the money that he may realise by means of the disposal of the goods on which the charge is made, to the extinction of the debts. All these charges have to be registered and the law provides a heavy penalty for the farmer who removes goods backing such a charge.

We have given considerable attention to the system of security against agricultural loans because this point is obviously very important for the development of crop finance.

We shall now describe the operation of this form of credit in certain countries (1); this will allow us to discuss certain interesting details and will complete the description of the system and give it a more concrete form.

II. — Situation in Certain Countries.

Argentina.

Loans against agricultural pledge have developed considerably in Argentina since the first year of the operation of the law of 19 October 1914 (No. 9,644) which instituted this form of credit. In a report presented to the Congress of the Republic of Argentina (2) the Minister for Agriculture points out that the remarkable development of agricultural loans secured by a charge on movable property has been considerably affected by the conditions and development of modern life.

In the past the Argentine farmer, if he were not a large owner and cattle farmer, only exceptionally concerned with arable farming, was a small owner without large means, using elementary methods, and content with producing a small output sufficient for his own supplies and requirements. At the present time, on the contrary, the farmer no longer farms to meet his own requirements but supplies the needs of people living in distant lands and having a wide variety of wants. That is to say from this point of view agriculture has become a business like any other and as such has need of appropriate credit to allow it to be carried on effectively and on a sound basis. Agricultural implements and machines have increased and have always to be replaced and perfected, seeds have to be selected and substituted for others according to technical advice and in accordance with world demand, more labour is employed and wages have risen and cultivation has become more intensive.

The inevitable consequence was the specialisation of each farmer in one or two crops. From this point of view it is easy to explain the large figure reached in this country for registered loans against security and the recent tendency in agricultural credit operations to prefer loans against movable property. Law No. 9,644 created a public instrument of credit which allows the easy mobilisation of the movable and semi-movable capital of the farmer by guaranteeing to the creditor the sums advanced by him by means of a more secure charge. The agricultural pledge instituted by this law can be backed by:

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(1) EGIDIO PARDINI Le anticipazioni sui prodotti agricoli a traverso le associazioni agrarie cooperative in rapporto all'organizzazione delle vendite collettive, alla difesa dei prezzi e all'indirizzo della produzione. Report made at the Vth International Conference of Agricultural Credit, Vienna, 9-11 September 1936.

(2) CARCANO Doctor MIGUEL ANGEL, Ministro de Agricultura: Memoria correspondiente al ejercicio de 1935 presentada al Congreso de la Nación. Ministerio de Agricultura de la Nación Argentina. Buenos Aires, 1936.

(*a*) Machinery in general, agricultural tools and instruments;

(*b*) All kinds of animals and their products and movable goods appropriate to a farm;

(*c*) All kinds of agricultural products of the agricultural year in which the credit falls due for repayment, whether they be hanging, standing, or harvested or gathered crops; and also timber, mining products and products of natural industry.

The goods given as security guarantee to the privileged creditor the loan, interest, and expenses incurred.

The debtor keeps possession of the goods which form the creditor's security.

Agricultural privilege, however, does not affect the prior claim of the landowner for rent due or for the sum due in cash for the use of the goods during the same time, if the debt is anterior to the giving of the guarantee, provided that the relative contract was registered previously to that of the guarantee contract with the public registrar concerned with these contracts.

The contract of guarantee can be made by either a public or a private act. But it is effective as concerns third parties from the day of its registration in the special register.

The registrar delivers at the time of registration a certificate which contains the names of the contracting parties, the amount of the loan and the date on which it has to be repaid, the kind, quantity, and location of the goods given as security and the date of the registration.

Fruits and animal and farm products can be sold by the debtor at the time when they are ready for sale but the buyer will not be able to take delivery until the creditor has been paid the amounts for which these goods are security.

The guarantee certificate is transferable by endorsement; and all those who sign or endorse a guarantee certificate are jointly responsible.

In the case of the sale of goods given as security either by a reciprocal agreement or as the results of a legal proceedings, the product of this sale is distributed in the following manner and order.

(*a*) Payment of the costs of a sale by order of a court and of administration charges from the day of the contract to the day of the distribution of the proceeds of the sale;

(*b*) Payment of taxes;

(*c*) Payment of the rent of the farm if the debtor is not the owner;

(*d*) Payment of capital and interest on the loan or loans in order of their registration;

(*e*) Payment of wages, salaries and the costs of harvesting, threshing, etc., due before the date of the contract provided that they have a preference according to civil law. The balance will belong to the debtor and will be paid to him.

The development of the system of agricultural guarantee can be seen from the following figures which refer to the period from the coming into force of the law described above until the end of 1935.

Registration of Agricultural Pledges.

Year	Number of contracts	Value in pesos m/n
1915 (1)	7,954	72,292,538
1916	10,850	104,560,068
1917	14,102	141,860,387
1918	22,736	185,949,913
1919	21,873	235,055,484
1920	13,736	273,791,639
1921	16,866	283,479,274
1922	17,995	269,312,079
1923	16,305	122,270,375
1924	15,036	174,910,353
1925	16,531	172,226,898
1926	23,884	187,694,976
1927	25,874	207,246,379
1928	40,483	271,419,144
1929	53,216	287,101,446
1930	78,460	398,566,377
1931	75,876	332,921,035
1932	68,361	312,596,917
1933	87,018	296,350,950
1934	94,943	367,166,150
1935	74,765	306,505,057

(1) Including the month of December 1914.

In 1935 contracts guaranteed by live-stock and live-stock products were 4,680 in number, 6.2 per cent. of the general total shown in the table, and 43,325,041 pesos m/n, 14.1 per cent. of the total.

Contracts guaranteed by the products of farming and of agricultural industry were greater in number, being 30,022, 40 per cent. of the total, and their value was also greater being 142,918,965 pesos m/n, 46.6 per cent. of the total.

Official action was more important in the case of this kind of loan against pledge by reason of the loans granted by the *Junta Reguladora de Granos*, the *Junta Reguladora de Vinos*, the *Comisión Nacional de Defensa contra la Langosta*, the *Junta Nacional del Algodón* and the *Banco de la Nación Argentina*.

The number of loans against guarantee given by the *Banco de la Nación Argentina* in 1935 was 6,788, amounting to 31,531,048 pesos m/n, concerned especially with wheat, flax, maize, and barley.

The loans granted by this bank responded to the numerous farmers' necessities during the whole period of production up to the harvest, and had the object of preventing forced sales of the products and of so maintaining the prices of these products.

Pledges against agricultural implements and machinery in 1935 numbered 10,361, 13.8 per cent. of the total, and amounted to 31,391,527 pesos m/n, 10.2 per cent. of the total. These loans allowed the farmers to get at the most opportune moment and under favourable conditions implements essential to their work.

Loans against security of machines not strictly agricultural, motor-cars, lorries, and tractors, as well as against other categories of goods, complete the total of contracts against guarantee given in the table.

France.

There has been in France during the last few years a large development of the system of crop finance, above all in connection with the measures which have been adopted for the organisation and defence of the market for wheat and wine (1).

For these operations are used not only bank deposits but also resources placed by the State at disposal of the mutual agricultural credit institutions.

Various laws have for this purpose put special credits at the disposal of the National Agricultural Credit Bank. Thus, the Law of 26 January 1933 provided a credit of 300 million francs for the financing of the wheat harvest of 1932; the Laws of 28 February, 4 July, and 9 July 1934 provided respectively 100 million, 200 million, and 500 million for the harvest of 1933, and the Law of 18 April 1935 finally granted 300 million for the harvest of 1934. The Law of 24 March 1936 renewed these various credits up 31 December 1939 in order to provide for the financing of future harvests.

The farmer who desires to obtain an advance against his harvest generally signs a promissory note or a warrant in favour of a local agricultural credit bank which rediscounts the note or warrant at the regional bank; the latter in turn rediscounts it at the National Agricultural Credit Bank or at the Bank of France.

The warrant is a special transferable certificate which states the amount of the loan, the date of repayment and the security backing the loan; the law of 30 April 1906 sought to make such a certificate a true credit instrument by provisions to allow it to circulate and to assure its payment when due. Thus, the warrant is transferable by endorsement and those who have signed or endorsed a warrant have joint liability. Further, if the borrower fails to meet his liabilities when the warrant becomes due, the holder can in a simple and rapid way have the security sold, and Article 12 of the same law gives to the holder of the warrant a preference in respect of the proceeds of the sale over almost all preferential creditors, and in the case that the funds obtained from the sale do not suffice to satisfy the claims of the holders Article 13 gives him further resource against the endorsers and the borrower.

By the terms of Article 1 of the Decree-Law of 28 September 1935 which replaces the corresponding provisions in the Law of 30 April 1906 (2), it is indispensable to be a farmer in order to be able to issue an agricultural warrant, since this law is concerned with a credit system created for the exclusive benefit of agriculturists, but the expression " any agriculturist " used in the law makes it clear that the word " agriculturist " should be understood in the widest sense, referring to any individual who is occupied in the cultivation of the soil, whether he be an owner cultivating his own land, a farmer holding land by lease, or a métayer farmer; the latter is an " agriculturist " at least in respect of that part of the agricultural products of which he becomes exclusive owner after the division of the harvest.

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(1) See the report of Prof LOUIS TARDY, already quoted

(2) J. CARRET, work already quoted

Of course the agriculturist can issue a warrant only against those things of which he is the owner. According to the Decree-Law of 28 September 1935 which increased considerably the scope of the agricultural warrant system and thus contributed to an increase in the credit facilities available to the agriculturists the following goods can be used as security backing a warrant:

(*a*) products of the farm concerned including the animals and sea-salt;

(*b*) all kinds of material used to hold the goods backing warrants;

(*c*) in a general fashion and without distinction all goods composing the stock appropriate to the farm;

(*d*) ungathered crops;

(*e*) goods having, in accordance with article 520 and 524 of the Civil Code, the character of real estate, by nature or destination, with the exception of those fixed to a wall.

The term of the bills or warrants is normally 3 months, it may be as much as six months with the possibility of renewal in justified cases.

The agricultural credit banks proportion the size of the financing loans which they grant to the size of the harvests to which they refer, and they are obliged to limit the loans to a figure lower than the value of the harvests.

The loans granted to wheat-producers to finance their harvests reached in 1936 75 francs per quintal, and those granted to vine-growers were limited to four francs per degree hectolitre.

A maximum rate of interest has been established for crop finance loans granted by the agricultural credit banks. For 1936 this rate was not to exceed by more than one per cent. the discount rate of the Bank of France.

The system of security by which the agricultural credit banks could cover the crop financing operations was improved by the Decree-Law of 28 September 1935 This law authorises the agricultural co-operative societies to use as security for warrants not only the products of which they are the owners but also products derived exclusively from the harvest of members and supplied by them. Further, the holders of warrants issued against wines and alcohols can in future demand of the excise officers that they grant certificates allowing the transfer of the security for these warrants only with their consent, and if the warrants are not paid when they fall due they themselves can obtain certificates authorising the transport of these wines with a view to their sale or distillation.

Another decree-law of 23 October 1935 instituted a new kind of security; it provided that the mere inscription at the indirect taxes office of a guarantee undertaking confers on the lender in respect of a determinate quantity of wine or alcohol from the distillation of this wine a privilege right of the same order and nature as that of a holder of an agricultural warrant. The National Agricultural Credit Bank, the regional agricultural credit banks, and general banks can receive these guarantee undertakings as simple commercial bills dispensing with one of the signatures usually required.

The existence of co-operative societies formed by producers contributes to increase the security of financial operations. They can, in fact, offer as security to the agricultural credit banks either a collective warrant or a joint undertaking by their managers to repay.

For individual loans the National Agricultural Credit Bank has suggested that guarantees should be provided not only by pledges or warrants but by the formation of small groups of agriculturists to give joint guarantees to the agricultural credit banks.

During the last few years importance has attached above all to the crop finance operations in respect of wheat and wine. Loans have also been granted for the financing of certain other products: wool, alcohol, spirits, and flower essences, etc.

The legislation in respect of the defence of the market for wheat (1) has encouraged the agriculturists and professional groups to stock their harvests and then to spread their sales. This system of storing and spread sales has had favourable results and it has even taken on an obligatory character for the wheat-producers' co-operative societies that have made a contract with the Ministry of Agriculture for the stocking of their products.

The financing of wheat harvests has been carried out up to the present time through the co-operative societies. The loans granted for the financing for the wheat harvests have actually been:

for the 1932 harvest, 139 millions to groups and 73 millions to individuals;
for the 1933 harvest, 513 millions to groups and 75 millions to individuals;
for the 1934 harvest, 491 millions to groups and 30 millions to individuals;
for the 1935 harvest, 395 millions to groups and 20 millions to individuals.

The Law of 15 August 1936 which created the National Wheat Office will lead to a further very large increase in the financial operations in respect to future harvests

The agricultural co-operative societies are called by this law to play a very important part in the storing and sale of wheat.

The cultivators belonging to them receive immediately they deliver their harvest to the co-operative society the total price of this delivery up to 50 quintals and a payment on account of one half of the price in respect to the surplus. It has also been provided that the payments on account shall be made by the co-operative societies in respect of deferred deliveries of wheat remaining for the moment with the producers.

The wheat co-operative societies thus have need, for this financing, of large sums which they obtain by discount operations at the agricultural credit banks and the Bank of France

While the loans granted in respect of the financing of the recent crop harvests had been made mainly to co-operative societies, in the case of credits to wine growers individual loans have been the most important

For the total harvest for 1934 and 1935 loans amounting to 264 million francs have been granted, five sixths being loans to individuals.

The statistical inquiries made each year by the National Agricultural Credit Bank show that since 1906 223,600 agricultural warrants have been issued against 5,352 million francs of agricultural products given as security for loans amounting to 2,252 million francs.

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(1) L'OFFICE NATIONAL INTERPROFESSIONNEL DU BLÉ Law of 15 August 1936 and principal regulations Fédération Nationale de la Mutualité et de la Coopération Agricoles. Paris, 1936.

Italy.

The principal law on agricultural credits (Royal Decree-Law of 29 July 1927, No. 1,509, converted into the Law of 5 July 1928, No. 1,760) includes in farm credit operations advances against the pledging of agricultural products These advances can be made either to individuals or to associations which cultivate land by virtue of a legal title or any form of contract. But they are granted only in favour of producers in the case of retarded sale or unsold products; they cannot exceed three fifths of the current value of the products given as security and they must be reduced or repaid even before their due date if the goods are either partially or totally withdrawn or if they have perished or deteriorated.

All the special agricultural credit institutions, as well as the saving banks and ordinary institutions and co-operative credit societies which have the relative authorisation from the Ministry of Agriculture and Forests, conduct among other things this kind of financing. This form of financing tends to further increase at the present time as a result of the adoption of the system of pooled sales for the principal agricultural products, a system which is considered as the most appropriate means to maintain prices at a stable and remunerative level. This system, at first voluntary, has been made obligatory in respect of wheat, hemp cocoons, and wool.

Thus, producers who delivered wheat to the organisations charged with the responsibility of collecting the harvest (Decree-Law No 1,273 of 15 June 1936) received a net price fixed recently at 125 liras per quintal for soft wheat and 140 liras per quintal for hard wheat.

The lending institutions grant to these organisations advances to an amount equal to the sum paid to the agriculturist. The rate of interest on these advances cannot be less than the official rate of discount.

These advances are secured by a special charge on the wheat delivered by the producer and on the final proceeds of its sale

In order to defend and to develop the production and trade in hemp, obligatory consortia had been set up which are authorized (Decree-Law of 8 November 1936, No. 1,955) to grant loans to growers. They can give as security the hemp which they have collected in order to obtain the necessary finances.

From the beginning of December 1933 this system has also been applied to rice producers who have been guaranteed an equitable price, payable at a date fixed in advance each year, for each quintal of rice remaining unsold at that date. It has indeed been laid down that from 15 October 1936 all rice producers shall be able to obtain an advance of 65 liras per quintal of paddy from credit institutions specified for this purpose; the advance is to be secured by the products and the rates of interest are fixed at not more than ½ per cent. above the official rate of discount.

According to the Decree-Law No. 812 of 15 April 1937 all nationally produced cocoons shall be delivered by producers in order that they may be pooled, dried, and collectively sold. At the moment of delivery the producers receive from the organisations charged with these functions an advance equal to the minimum guarantee price, that is to say 7 liras per kilogramme for yellow cocoons and 7.50 liras per kilogramme for white cocoons.

Arrangements were made for wool by the Decree-Law No. 521 of 8 March 1937 based on the same principles as the measures taken in respect of other products discussed above.

Poland.

Crop finance credits have played an important part in the development of agricultural production in this country particularly during the economic crisis. Wheat harvests in particular have attracted the attention of the Government. The trade in cereals in this country has always been characterized, in fact, by a strong tendency to an increase in the amounts coming on the market for sale during the months following the harvest and to a decrease of the amounts offered for sale in the months preceding the harvest The reason for this is a permanent lack of own working capital on most of the farms (1) This state of affairs tended to involve very large fluctuations in the prices registered during the agricultural year The introduction of a system of warrants allowing the agriculturist to obtain loans secured by cereals leads him to limit the amount that he offers for sale immediately after the harvest and to adjust during the whole year the amounts he puts on the market to the demand

Agricultural warrants were created by the Decree of the President of the Republic of 22 March 1928 According to this decree products of agriculture and agricultural industry may back a warrant Warrants can be issued only by real or legal persons managing farms or agricultural-industrial undertakings which use, on principle, for raw materials products produced on their own land

The warrant can be issued in favour of credit institutions specified by the Minister of Finance The security for the warrant can only be products of agriculture or agricultural industry which belong to the debtor, and only on condition that these products are not considered, according to current laws, as fixed property by nature, by law, or by destination These products must either be in the possession of the debtor or under his administration or control. The basis of the warrant is a contract signed before a notary or under private seal with the legalisation of the signature of the debtor by a notary or court

The claims of third parties against the warrant are established by the registration of the security rights in the register of warrants. This register is open to the public. A separate registration is made for each farm or industrial-agricultural undertaking.

As in other countries the goods given as security remain in the possession of the debtor.

The agricultural warrant can be transferred to another credit institution by a written contract followed by the handing over to this institution of the original contract. The transfer of the warrant affects third parties only when it is entered in the warrants register. According to the law the security rights expire at the end of 3 years from the date of registration. Every intentional deterioration, every illegal removal of the security, and the intentional giving as security of goods not belonging to the debtor, entail a penal liability without prejudice to the ordinary civil liability.

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(1) Michel Wierusz-Kowalski: Le financement des récoltes. *L'Est Européen Agricole*, No. 19, October 1936. Paris.

However, experience has shown that the Decree of 22 March 1928 did not protect sufficiently the interests of the secured creditors that is to say credit institutions. This became obvious during the economic crisis. In 1931 there were frequent cases of the illegal removal of the securities. Among the elements of weakness in the agricultural warrant system was also the possibility for third parties to seize the goods given as security. This possibility greatly reduced the rights of the secured creditor and even often made his rights illusory. These reasons led the Government to modify the Decree of 22 March 1928. This was the object of a new Decree issued by the President of the Republic on 23 August 1932.

The changes were concerned mainly with two points; first, the protection of the security against seizure by third parties, and second, the increase in the penalties imposed on dishonest debtors and on third parties who consciously contravened the provisions of the Decree. Thus the change had the object of strengthening the guarantees given to the creditor by the security.

This amendment stipulated that the security should not be subject to distraint nor added to the assets in the case of the bankruptcy of the owner to cover either private debts or tax and commercial debts with the exception of the land tax, and the tax on capital and the industrial tax. This protection against seizure lasts as long as the credit guaranteed by the warrant has not been repaid.

According to the terms of the amendment, credit institutions have the right to sell the security in order to recover the amount advanced. It was stipulated that the secured creditor has the right to sell the goods backing the warrant in order to obtain payment of his credit either on the exchange, if the goods are dealt in on the exchange, or by public sale.

Further, the new Decree suppresses the optional character of the penal sanctions and introduces a penalty of imprisonment in addition to a fine. The penal sanctions have been extended to all persons other than the debtor who in transactions concerned with the securities have deprived the debtor of the possession of the goods forming the securities, knowing of the existence of the warrant. Intentional destruction, illicit removal, or the tacit agreement to the removal of the security, the giving as security for a warrant of goods not belonging to the debtor, are punished by a penalty of imprisonment for a period between six months and two years and by a fine of 10,000 zlotys at most.

Credits can today be granted against the security of wheat, rye, oats, barley, oil plants, and forage crops, etc. They can be granted during the whole of the agricultural year.

Credits against registered securities put at the disposal of the owners of more than 50 to 100 hectares amounted in 1935-36 to 40 millions zlotys and remained during 1936-37 at the same level. In principle, these credits can only be opened at the moment when the wheat is harvested and stocked. Nevertheless, during the year 1936-37 the credit institutions were authorised to make payments on account which could reach 25 per cent. of the amount provided by the credit against the warrant; these payments on account have the object of decreasing the numbers of cases of sale of standing wheat by farms which particularly lack funds necessary to cover the cost of the harvest. The credits can be granted up to an amount of 50 per cent. of the value of unthreshed wheat or to the amount of 70 per cent. if the security for the warrant comprises wheat grain. The value is calculated according to the registered prices on the exchanges in the large towns.

Other Countries.

In **Bulgaria** the organisation of agricultural credit which has its main centre in the Agricultural and Co-operative Bank also includes loans against the security of movable goods (warrants). In 1935 266,507 loans of this kind amounting to 1,190,668,094 leva were granted to farmers. The credits granted by this bank are mainly in favour of silk production, the essence of roses industry, the sale of cotton and flax, and the supply of cereals. The directions given by the State to agricultural policy shows that credit is changing in form from direct loans granted to agriculturists or co-operatives to larger credits for production and sale.

In **Greece** the Agricultural Bank contributes among other things to the marketing of agricultural products and the stabilisation of prices. To this end an agricultural credit system is operated mainly by means of advances against products granted either to individual agriculturists or to co-operative societies By this means it is sought not only to maintain prices but also to increase and to improve production by financing the crops.

The system of the pooling of products and of advances against these products is organised in **Hungary** through the agricultural co-operative societies and the Central Mutual Credit Institution, which is assisted and controlled by the State. A special form of advances is that known as green credits, that is to say, credits granted against standing crops Each spring, regulations are made by decree concerning the procedure in respect of these credits. Recent laws facilitate the granting of advances against products and above all advances against sale contracts and production contracts.

In **Romania,** the Central Co-operative Bank with the assistance of the Central Import and Export Co-operative Society has organised cereal crop finance with the particular object of improving the price of the products.

In this system the producers deposit the cereals either directly or through the co-operative societies and the federations, either in the storehouses of the Central Co-operative Bank or in trucks sent to its address or to an address indicated by it. For cereals thus deposited the producers receive a loan against a security undertaking with a sale order. This order can be either for an immediate sale at current prices or for sale at a minimum price within a maximum period of 30 days according to the choice of those who deposit the goods. In the case where an order for sale at a minimum price is given, if the goods cannot be sold within the 30 days at the specified price, the sale will be made at the current price within the following 15 days, at the outside. In the case of an order for an immediate sale at the current price, the advance shall be of an amount equivalent to 75 per cent. of the value of the cereals calculated according to the rate at Braïla; in the case of an order for sale at a minimum price established by the producer the advance shall be 50 per cent. of the value of the cereals calculated in the same way.

The agreements pledging the goods and authorising their sale received by the bank from the co-operative societies or the federations are sent to the Central Import and Export Co-operative Society which once it has possession of these documents makes the sale contracts.

The advances are paid to the producers by the federations, people's banks, and co-operative societies which are supplied for this purpose with the necessary funds by the banks.

Immediately after the sale of the cereals by the Central Import and Export Co-operative Society the bank proceeds to the final liquidation of the accounts in favour of the producers who participated in the operations.

Account must also be taken of the law published in the *Monitorul Oficial* No. 81 of 7 April 1937 concerning the general storehouses and the issuing of warrants against goods and cereals. Formerly, this operation was regulated by the Law of 1881 concerning general storehouses, a law modified in 1882. The object of the new law is to complete the old by detailed regulations of the operations entailed in the issuing of warrants, the conditions under which warrant-receipts are to be delivered, the negotiability of these warrants, etc.

In contrast with ordinary law the measure provides that when goods have been the object of the issue of a warrant, this warrant gives only a legal title of possession of the goods, a possession operative only so long as the goods are in the possession of the debtor.

The law contains rules for the liquidation for warrant-receipts as well as for the proceedings in the case of non-payment.

The law grants to the Romanian Storehouse Society the right itself to issue warrant-receipts which when they are concerned with cereals are exempt from stamp taxes. These documents can be lodged as security at the National Bank of Romania during 120 days and for an amount representing at most 75 per cent. of the value of the goods calculated according to the prices on the exchanges of Braïla, Galatzi, or Constantza, for the day on which the advance was granted.

The right to issue receipt warrants may also be granted by a new law to other societies which will be responsible for the regularity of the bills thus issued and for the conservation in good condition of the goods deposited.

In the countries of Latin America there has been a remarkable development in advances against security. The law of 22 March 1918 introduced in **Uruguay** a similar system to that which existed in Argentina and which we have already described above. On 31 December 1936 current operations against agricultural security at the Bank of the Republic amounted to 1,258,318 pesos (1).

In **Colombia** the use of agricultural products as security for loans was instituted by a law No. 24 of 5 November 1921. This law is based on the same principles as the laws in Argentina and Uruguay.

G. COSTANZO

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(1) BANCO DE LA REPÚBLICA O. DEL URUGUAY. MEMORIA Y BALANCE GENERAL CORRESPONDIENTE AL EJERCICIO TERMINADO EN EL 31 DE DICIEMBRE DE 1936. Montevideo, 1937.

THE INTERNATIONAL SUGAR AGREEMENT

The Antecedents of the International Sugar Conference.

The attempts of the principal sugar-exporting countries to cope with the steady fall in sugar prices from 1927 onwards led in 1930 to the five-year agreement, known as the Chadbourne Plan, between Cuba, Java, Peru, and the five European exporting countries, Belgium, Czechoslovakia, Germany, Hungary and Poland. World production decreased in 1931-32 and 1932-33, reductions in these countries and in most of the beet-sugar producing countries outside of the agreement being sufficient to outweigh the appreciable increases elsewhere, notably in India, Japan, and Egypt and in countries supplying the United States market There was a heavy fall in world consumption, however, and stocks rose to a maximum of 10,897,000 metric tons raw value (Licht) at the end of 1931-32 and were still at the high level of 9,888,000 a year later Meanwhile the fall in prices continued In 1933-34 production increased and the upward movement continued in the following three seasons, thanks principally to increases in the beet-growing countries, India and Cuba. Increase in consumption prevented the level of stocks from rising, however, and in 1935 and 1936 the price situation on the London market remained more or less stagnant.

To the "Chadbourne" countries, which had reduced both their production and their net exports by 46 per cent, the position at the end of five years' sacrifices was very unsatisfactory and not all of them agreed even to become members of the International Sugar Committee that was founded in August 1935 to watch the situation.

At the World Monetary and Economic Conference in 1933 Cuba brought forward a project for a ten-year intergovernmental agreement, under which there would be no increase in factory capacity, no additional assistance to production or export and, up to 1 September 1935, no increase of import duties to over 70 per cent. ad valorem The project was opposed by the United Kingdom Government, which desired to retain full tariff freedom and considered that limitations on factory development would check technical progress, preventing, for example, amalgamations or geographical redistribution The United Kingdom Government also indicated its opposition to any reduction in the home beet-sugar industry.

Further international discussions did not take place until March 1934, when the "Chadbourne" countries, with the exception of Germany, met representatives of the United States and the United Kingdom. At that date neither of the last two countries had stabilized their national sugar policies and for this reason it was impossible to come to any decision. The United Kingdom offered, however, to limit home production and also to stabilize export from the Crown Colonies for two years at 850,000 long tons (864,000 metric tons) and three years at 878,000 tons (892,000), 914,000 (929,000) and 950,000 (965,000) tons respectively

The British Government continued to study the possibilities of bringing about a comprehensive international agreement and in its memorandum of July 1935 repeated its previous offer but at this time general feeling was not favourable to the setting up of a new plan. The considerable increases in consumption in 1934-35 and 1935-36, however, had reduced stocks by the end of the latter season to a figure lower than in any of the preceding seven years. On the other hand there was a feeling of insecurity due to the extension of production in some countries and the latent capacity elsewhere. In these circumstances the need for stabilization was more generally felt than before.

The International Sugar Conference, summoned in the name of the Bureau of the World Monetary and Economic Conference, met in London on 5 April 1937, the Governments of 21 countries being represented. The conference lasted about five weeks and it was not until 6 May 1937 that the International Agreement regarding the Regulation of Production and Marketing of Sugar was signed. Negotiations were carried on with the separate countries by a committee comprising representatives of France, Germany, the United Kingdom and the United States, under the chairmanship of the last.

The Regulation of the Free Market.

The experience of the Chadbourne Plan had shown that a necessary preliminary to the determination of workable quotas for the exporting countries is the stabilization of conditions in the free market. As all the exporting countries desired to maintain or even increase their exports, while, on the other hand, it could only be hoped that consumption would continue the upward movement that had prevailed in 1936-37, the non-exporting countries had to be asked to give definite guarantees to take no action that would lead to a shrinkage of the free market. While the self-sufficing countries had to be prevented from becoming exporters, the importing countries had to be induced to maintain or even increase the quantities taken from non-preferential sources

Under Chapter III of the Agreement the importing countries accordingly undertake not to encourage further expansion of the industry by bounties, protective duties, subsidies or other means. It is provided that any exporting countries whose free market possibilities undergo serious change may withdraw on declaration of the facts by the Council or by arbitrators. The original estimate of free market requirements in 1936-37, which was used as a provisional basis for negotiations, was 3,107,000 metric tons, revised at an early stage to 3,300,000 metric tons. On the assumption of a 3-3 ½ per cent increase for 1937-38, a figure of 3,407,500 tons was subsequently adopted as basis.

The United Kingdom is responsible for over one-fifth of the requirements of the free market. A primary condition of British participation in an international agreement had been that nothing should be done that might diminish the market for Colonial and Dominion sugars in the United Kingdom. On the contrary, the British Government desired to ensure to these producers the advantages accruing from any increase of demand in that market. It was partly for this reason that the original Cuban proposals to the World Monetary and Economic Conference in 1933 had failed, the British Government desiring to retain full freedom to regulate its tariff for this purpose as long as there was not a much more complete international participation in an agreement than then seemed possible. Canada, which offers a substantial free market, its own beet-sugar industry covering about 10-15 per cent. of its requirements also participated in the Conference and stated that it would not encourage additional production provided that no rise in prices were stimulated. The total requirements of the British Empire in 1936-37 were estimated at 3,300,000 metric tons. Taking this figure, 34.0 per cent. is left to foreign suppliers and this percentage is guaranteed for succeeding years of the Agreement. The Colonies and Dominions are guaranteed their present proportion of 47.4 per cent. and will no doubt continue to take advantage of it. Production in the United Kingdom, however, is not likely to increase beyond the level of 618,000 metric tons white sugar, accepted as a nominal basis in the first year, so that it will not utilize its full percentage in subsequent years. For 1937-38 a 3 per cent. increase in British Empire requirements was subsequently estimated and intimated to the Council at the July meeting; 1937-38 requirements would therefore be 3,430,000 tons. The British Government is to introduce a bill for the extension of the existing preferences for the duration of the Agreement.

Australia, the principal Empire source of United Kingdom imports, receives a quota of 406,423 metric tons, practically equivalent to the 1936-37 export and only 20,000 tons below the record of 1936, a year of unusually favourable weather conditions. It agreed not to claim its share in any increase in the first year, so adding a certain quantity to the free market. Australia thus maintains the status quo of its industry as an exporter but, while it is already possessed of a highly organized industry, it will require to tighten up the internal regulation of production. The Union of South Africa, which extended its production control system for a further five years from 30 April 1936 and which limits its production to 476,488 short tons (432,263 metric tons), is in a somewhat similar position to Australia but has received a quota slightly lower than it expected, 230,000 short tons (209,000 metric tons) against 224,000 short tons (203,000) and larger than its maximum of 220,424 short tons (199,965) in 1935. Like Australia, the Union will not claim its share of any increase in British Empire consumption in the first year.

The British Colonies were granted 965,245 metric tons (950,000 long tons) as a basic quota; they receive their share of the 3 per cent. increase in consumption and in addition the United Kingdom has transferred to them its share in the increase for 1937-38. The total net quota for the Colonies in 1937-38 was subsequently established at 997,000 long tons (1,013,000 metric tons). The basic quota of 950,000 long tons was arrived at by the Colonial Office by taking the peak export of each Colony (except the East African group) up to and including 1936 and subtracting 7 per cent. East Africa was given an increase on its peak export in recognition of the fact that its industry is in a pioneer state. Subsequently the Permanent Advisory Committee of Colonial Sugar Producers at the Colonial Office recommended that three-fifths of the balance due to the 3 per cent. increases (including that received from the United Kingdom) be allocated proportionally amongst all the dependencies other than East Africa and the remaining two-fifths be used to make special allowances for the social-economic conditions in particular Colonies. The Colonial Office indicated that in allocating the growers' quotas within the individual Colonies special consideration should be given to "cane-farmers." Should any Colony be unable to fulfil its quota, British Guiana and Fiji are to have a prior claim in redistribution.

The Government of India has agreed to prohibit exports of sugar by sea unless to Burma; provided Burma does not reexport, this exception dœs not, in fact, affect the status quo since Burma was politically part of India until 1 April 1937.

Like the United Kingdom, the United States has its own problem of adjusting quotas for sugar supplies from a number of very different sources and in both instances, though they are not exporters, the international regulation of the sugar market has therefore a direct interest for the Treasury. The Government of the United States agrees to take from countries not enjoying a preference a proportion of its Continental requirements at least equal to that allotted in 1937 under the Jones-Costigan Act. In calculating the net import from full-duty countries reexports of Cuban sugar are not to be reckoned and, should the Philippine quota be reduced below 800,000 tons raws and 50,000 tons refined, the net import from these countries will be correspondingly increased.

The Sugar Control Act of 1934 (the Jones-Costigan Act) already prolonged for a year, expires on 31 December 1937. A new Act, signed on 1 September 1937, however, continues for a further three years both the quota system and benefit payments to growers, the latter paid as soil conservation grants, financed, however, by an excise tax instead of the processing tax, the use of which for controlling production was declared unconstitutional by the Supreme Court in January 1936. The tax is reduced from 75 cents per 100 pounds raw sugar to 50 cents which is the maximum allowed for Cuba by the Trade Agreement of 1934. The size of the total allocation is of the highest importance, the tariff alone being insufficient to raise prices to a level profitable to the domestic industry. The quotas for imports into the United States will be for Cuba 1,911,476 short tons (1,734,062 metric tons), 29 per cent. of the total requirements, for the Philippines 1,029,781 (934,202) or 15 per cent. and for other foreign sugars only 26,419 (23,967) or 0.4 per cent, proportions identical with those under the revised 1937 quotas. Under the new Act continental producers supply 30 per cent. of the total requirements and insular producers 26 per cent. While a percentage basis is fixed, the 3,715,000 short tons (3,370,000) raw value to which these quotas of the 6,682,670 short tons (6,062,418) total requirements result is a minimum.

The soil conservation grants paid to the United States continental and insular producers, like the previous benefit payments, are used as a levy to improve farming practices and labour conditions, being made dependent on fair wages and non employment of child-labour; by means of a sliding scale of payments "family farms" also receive more favourable treatment than farms producing larger quantities of beet or cane.

Requirements for the following year are estimated in December on the basis of distribution statistics for the preceding year from November to October and taking into account on the one hand stocks and on the other growth of population. Deficits on United States continental or insular cane or beet quotas are mutually transferable. Payments are also made for crop deficits outside the control of the producers.

The imports from the free market are so insignificant in the total of the United States requirements and in the total of the free market that the increase of consumption in that country practically affects only the United States duty-free and preferential suppliers. In 1936-37 domestic beet-sugar production, though the largest since 1933-34, thanks to a large harvested area, did not attain the revised quota for this year. Domestic cane-sugar production, on the other hand, which was a record, exceeded the quota, area having increased and unit-yields having been high. The cane area is extending and the quota of 420,166 short tons (381,168 metric tons) for 1937-38 is higher than that awarded in 1936-37, which was 319,340 short tons (289,700). Whether continental cane and beet production continue the upward movement that has characterized the last decade depends on the future regulation of the United States market.

In Hawaii the limitation of the market by the quota system has already been effected by reducing the cane area; decline in production from the maximum of 1933 has been relatively small. In Puerto Rico surplus cane is sold to the Government for the production of molasses, exports have maintained a high level in most years since 1929. In the Virgin Islands, which are entirely exploited by the Government through the Virgin Islands Company, established in 1934, the bulk of the cane is utilized for rum production and restriction of sugar output to the United States import quota offers no difficulty; exports were already greatly reduced in 1935.

The Philippines agree not to export to other countries than the United States, as long as they receive from the latter, under the Independence Act, the quota of 800,000 short tons (726,000 metric tons) raws and 50,000 (45,000) refined, unless the Council decides to allot additional quotas under Article 20 (concerning increased market requirements), when they shall receive 4 per cent of the aggregate additional quotas. Should the United States reduce the quota for the Philippines the latter will be entitled to receive a basic quota on the free market. No increase can be claimed, however, in the event of a change in the United States tariff The Philippines will also waive any potential advantages under the most-favoured-nation clause during the currency of the Agreement, other countries on their side making a similar renunciation should the United States grant any advantages to the Philippines.

The undertaking by the Philippines not to begin placing sugar on the free market removes one of the most serious fears of other exporters. There had been a further rapid upward movement of production from 1930-31 and by 1933-1934 cane area planted had attained 305,890 hectares (755,882 acres) and production of sugar 1,471,000 metric tons. The 1934 limitation law in the Philippines expires with the 1936-37 season. To enable production to be limited to the amount of the United States quota plus internal requirements and a reserve of 10 per cent. of these two categories, the Philippine Government makes benefit payments to cane growers.

The position of China, the most important Far Eastern market, remains somewhat indefinite under the Agreement. The troubled political situation has meant great fluctuations in production and imports in recent years. In addition to the registered imports there is very extensive smuggling of Java sugar into China by Japanese dealers, mainly though the Japanese territory of Kwantung. The Government has undertaken to endeavour to prevent any decrease in imports. For this purpose a National Sugar Trading Supervision Commission was established in June. As the Chinese Government has since become involved in hostilities it may, however, apply under Article 51 (*a*) for the suspension of its obligations under the Agreement.

The Regulation of Exports.

While on one side the Agreement guarantees against further shrinkage of the free market it has on the other to prevent competition between the exporters sharing that market; otherwise not only would prices be further reduced but the eventual reaction of the importers would be to introduce severer restrictions, with consequent further shrinkage of their requirements from the free market. Consequently, the principal exporters had to be asked to limit their exports.

Export quotas had to be fixed for thirteen of the countries represented at the Conference, and, in addition, an allowance had to be made for possible exports from two countries—France and Yugoslavia—in the form of a reserve quota. Most countries based their claims on actual exports of a recent year, or on a previous maximum export, emphasizing the importance of the industry in their internal economy or in their commercial policy. No general formula was found to harmonize these arguments. Naturally, there was considerable reluctance on the part of countries that had recently increased their exports to relinquish these gains and, as far as exports were concerned, only a standstill agreement could be expected. The total basic allocation eventually agreed on was 3,670,000 metric tons, including 47,500 tons reserve quota. Apart from the process of bargaining, three expedients were adopted to harmonize the figure of total export allocation with that of free market requirements, namely: (1) a net quota for the first year of the Agreement, (2) an upward revision of the free market estimate, and (3) empowering the Council to reduce, if necessary, the net export quotas in the first two years of the Agreement and in subsequent years, should all the countries concerned accept, by up to 5 per cent. The first expedient was made possible by the fact that six countries were willing to sacrifice parts of their respective quotas during the first year, seeing that they would in any case be unable to use them entirely. In this way a reduction of 149,000 metric tons was obtained in the total for Belgium, France, Germany, Hungary, Poland, and the U. S. S. R. On the other hand the additional quantities granted to Czechoslovakia raised the total by 90,000 tons leaving a net reduction of 59,000 tons. The estimate of the free market was increased by a further 107,500 tons to 3,407,500, in the opportune hope that consumption would increase in 1937-38 by over 3 per cent. These two expedients together brought a further reduction of the disharmony to about 203,500 tons. The putting into force of the 5 per cent. reduction in 1937-38 would still leave an excess but the Negotiating Committee hoped that further amounts of the quotas might prove not to be used.

The crux of the negotiations was to establish the basic quotas, which were felt by the various countries to involve a question of principale. While a number of countries were quite prepared not to utilize their full basic quota in the first year or two of the Agreement, it was felt that the level of the basic quotas would largely determine bargaining power in any subsequent discussions in later years of the Agreement.

Amongst European exporters Czechoslovakia has taken the first place since the War. When the free market began to shrink and particularly when the United Kingdom adopted the policy of protecting its refining industry, the fundamentals of the Czechoslovakian sugar industry were menaced. In recent years it has exported two-fifths of its production against two-thirds in 1927-28. In the endeavour to meet the changed situation the area under sugar-beet has in the last decade been reduced by half. Other crops are affected by the agricultural crisis so that substitution provides no remedy. Every decrease in export prices makes a lowering of taxes and internal prices more difficult. Efforts to extend the use of denatured sugar for feed do not go far to meet the problem. In 1937 a rise in export prices enabled the growers to claim an increase in beet area, though not up to the 1937 level and the 1937 area is only two-thirds of that of 1926-30. On account of this increase in area Czechoslovakia claimed at the Conference an export quota of 400,000 tons, a quantity greater than the probable 1936-37 export but maintaining roughly the 11 per cent. of the free market accepted under the Chadbourne Plan. An Agreement was eventually reached by adding to a basic quota of 250,000 tons quantities of 90,000 in 1937-38, 60,000 in 1938-39, and 25,000 in 1939-40, on the understanding that steps would be taken to reduce the beet area to corresponding levels

Java had to sell about 87 per cent. of its pre-crisis crop on the free market; for a time its high level of technical efficiency enabled it to stand the strain of low prices and until the Chadbourne agreement it refused to become a party to any international agreement for the limitation of production or exports, believing that the only solution of the sugar problem was the reduction of the protective measures that had diminished the free market. The continued shrinkage of this market, however, together with growing doubts within the industry as to the future, induced it to join the Chadbourne countries in 1930-31. Nevertheless the weaknesses of that plan were more clearly seen in Java than elsewhere, and the industry continued to adjust itself by means of drastic economies to the situation on the free market. With the end of the Chadbourne system in August 1935, Java undertook a new and still more drastic regulation of its internal organization. Under the Hart scheme, which came into operation in 1936, half of the mill capacity is eliminated and the remainder is run at full capacity. Production is stabilized at 1,400,000 tons. The struggle to adjust the industry to the restricted free market has exhausted the large capital reserves that had been built up in the years of Java's great prosperity, and, though surplus stocks had been eliminated and it is believed that the reorganized Java industry could survive on the basis of free market prices, there are no longer reserves or the possibilities of further reorganization for the industry to meet unaided any further deterioration in export conditions. Java was therefore prepared for the sake of securing some measure of stability to join in a new agreement that would cover not only the great bulk of the world's exporting capacity but the principal importing countries. The quota of 1,050,000 tons received maintains exports practically at the 1936-37 level, and in the first year of the Agreement Java obtains 29.2 per cent. of the total net export allocation. The Netherlands market is reserved for the Dutch beet-sugar producers. At present relatively small quantities of cane-sugar are imported from Java and Surinam and it is agreed that there will be no net export.

Cuba received a quota of 940,000 tons, equivalent to its 1936 exports. This quota remains larger, however, than that awarded under the Chadbourne Plan, when the estimate of the free market was very much larger. This, together with the still more important fact that the share of preferential sugars in the United Kingdom market is now stabilized, gives Cuba every reason for satisfaction. The Cuban share of the total net export allocation in the first year of the Agreement is 26.1 per cent

Brazil, whose exports had fluctuated greatly in recent years, obtained a quota of 60,000 tons. Haiti, which, though without a preferential market, is a low-cost producer, received 32,500 tons as an export quota. Mozambique was granted 30,000 tons. The remaining two cane-sugar exporters, the Dominican Republic and Peru, depend entirely on the free market, apart from relatively small home consumption absorbing little over a tenth of their respective outputs, and have little or no possibility of finding a more profitable substitute for cane. The Dominican Republic received a quota of 400,000 tons, a figure exceeded only in 1932, 1935 and 1936 while Peru received 330,000 tons

A prime condition of Soviet participation was that there should be no limitation of production or control of stocks or any other interference with the internal conditions of the sugar industry within the Soviet Union, where the Government is still building up the industry to meet the immense potential demand within its territories. The U S. S. R. is now the world's largest producer after India and Cuba. The significance of the relatively small export lies in the obtaining of valuta. It is directed mainly to Iran and Afghanistan, but there are spasmodically large exports to the United Kingdom, Turkey, and other countries A basic quota of 230,000 tons was granted, of which the Soviet delegation agreed that in the first year only 218,500 should be exported, that is, 6.1 per cent. of the total net allocation. Exports to Mongolia, Tannu Tuva and Sinkiang are not included in the quota.

Germany, though the principal sugar exporter of Europe before the Great War, has long been absent from the export market and did not utilize its quota under the Chadbourne Plan. It had, in fact, a net import in each of the three years ending 1934-35. Its production had recovered to 2,547,000 metric tons in 1930-31 but had fallen sharply to 1,091,000 in 1932-33. Since then there has been a gradual upward movement The German delegation claimed the right to renew exports on a prewar scale, it being stated that efforts had been made to consolidate the industry by increasing internal consumption, that the process of internal reorganization for the supply of that market had been completed and that for exchange purposes export would be recommenced in the very near future on a relatively large scale under the Four-year Plan. As a recognition of this standpoint had been previously indicated as the condition of German participation in an international agreement a basic quota of 120,000 tons was granted. As a quota of this size had been asked largely as a matter of principle and could not be fulfilled in 1937-38, the German delegation gave up for that year all but 50,000 tons.

For Poland, as for Czechoslovakia, the sugar export plays a particularly important part in the national economy and it has consistently been a heavy exporter. Since 1931-32 exports have been, however, on a lower level, averaging 96,000 tons in the four years ending 1935-36 and representing about one-third of the total production. A basic quota of 120,000 tons was granted, not to include Danzig Of this it was agreed that only 100,000 tons should be utilized in 1937-38.

Hungary, which had already drastically limited its production after 1930-31 in conformity with the export difficulties of recent years, was granted a basic quota of 40,000 tons, of which only 20,000 tons, over double the export of 1935-1936, were to be used in the first year. Belgium claimed to have already adapted its scale of production to present market conditions; its production in the last decade has not shown any distinct tendency In three recent years it has had a net import A basic quota of 20,000 tons, of which only 15,000 would be utilized in the first year was therefore accepted as satisfactory.

For countries not normally exporting but whose arrangements for disposal of their production may be upset in years when unusually favourable weather results in high unit-yields a reserve quota of 47,500 tons has been set aside, of this 12,500 is at the disposal of Yugoslavia and the rest at that of France. For 1937-38 the French delegation stated that not more than 15,000 would be required Production in France now practically balances consumption in that country, allowing also for the quota taken from the colonies. The regulatory agreement stimulated by the surplus of 1931 was extended and perfected in 1934 and 1935 to cover all home-grown sugar and establish a colonial quota.

Later signatories of the Agreement may be assigned additional quotas (Article 19) and, if a three-fifths vote of the Council decides that the market requires it, additional quotas may be allotted proportionally for periods up to one year to all countries, including those having only reserve quotas. Unused quotas may also be redistributed pro rata, unless the Council decides to use up to 25 per cent. or 50,000 tons, whichever is larger, of such amounts, to meet cases of special hardship, should the amount so available be less than 30,000 tons the Council may nevertheless use up to the latter amount to meet such a case of special hardship.

Stocks in the contracting countries are not to exceed 25 per cent. of annual production, unless the Council makes a special allotment On the other hand those cane-producing countries to whom export quotas have been allotted shall regulate their production so that their stocks shall not be less than 10 per cent. of their quota for the year, unless prevented from doing so by adverse conditions. Cuba is given a special privilege of holding at the end of each calendar year stocks for the United States not exceeding 30 per cent. of its export quota to that country and stocks for the free market not exceeding 300,000 metric tons. Java may hold 500,000 tons or one-fourth of its crop each year, and Hungary 30 per cent. of its annual production.

The Agreement is not subject to denunciation during the five years of its operation but withdrawals are allowed by countries involved in hostilities, experiencing an acute shortage or suffering from adverse changes in the supply-demand relation on the free market. Notice of withdrawal by one Government in accordance with these provisions will entitle any other Government to give similar notice during the ensuing three months. Of the 100 votes on the Council 55 will be exercised by the exporting countries and 45 by the importing countries. Of the former Cuba has 10, the Netherlands (representing Java) 9, the U. S. S. R. 5, the British Dominions 5, France and Yugoslavia 4, other European exporters 11 and other cane exporters 11. Of the 45 votes exercised by the importing countries the United Kingdom and the United States have 17 each, India 6 and China 5. The Executive Committee shall consist of three representatives of cane-sugar producing countries, three of beet-sugar producing countries, and three of importing countries. Of the first Cuba and theNetherlands shall always make up two and of the last the United Kingdom and the United States. Rotations are established for the beet-sugar producing countries and for the third members of the other two groups. The Council held its first meeting on 5 July 1937, when a British chairman and a Cuban vice-chairman were elected for the first year of the Agreement.

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PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography.

FRAUENDORFER, SIGMUND von und V. A SCHAEFER Die Schrifttumsnachweise der Landwirtschaftswissenschaft Internationale Uebersicht uber die laufenden Bibliographien und Referatblatter auf dem Gesamtgebiet der Landwirtschaft und den verwandten Gebieten Zusammengestellt in der Bibliothek des Internationalen Landwirtschaftsinstituts in Rom Berlin, P Parey, 1937. 43 p (Berichte uber Landwirtschaft. Neue Folge 131. Sonderheft).

HONGRIE. ORSZÁGOS KONYVFORGALMI ÉS BIBLIOGRÁFIAI KÖZPONT. A Budapesti könyvtárakba 1935. évben járó folyóiratok cimjegyzéke. Budapest, Királyi magyar egyetemi nyomda, 1935. 237 p (A sorozat. 3 szám).
[Title also in German and French: Liste des périodiques que les bibliothèques à Budapest reçoivent en 1935]

KIROV FOREST TECHNICAL ACADEMY FOUNDAMENTAL LIBRARY. BIBLIOGRAPHICAL BUREAU. Index of articles on logging and timber transportation published in journals issued by the USSR and foreign countries in 1931-34. (With annotations). Editors Associate Professor I. J. Molnikov & Associate Professor V. I. Garusov Leningrad, Goslestechisdat, 1937. 296 p.

MARCELLETTI, M. Bibliografia delle sanzioni Firenze, G. C. Sansoni, 1937. 229 p ((Guide bibliografiche dell'Istituto nazionale di cultura fascista, 3).

WINIZKY, I. Cheque: guia bibliográfica e índice legislativo (con la traducción de las partes pertinentes al francés, inglés e italiano). Buenos Aires, Universidad, 1936. 202 p. (Guias bibliográficas del Seminario de ciencias jurídicas y sociales, 1).

General.

CASABIANCA, A. Il piedistallo agrario. Piombino, Tip. « La Perseveranza », [1937]. XV, 395 p.

Economic History.

Schmidt, P. Nordkalabrien. Eine sozialgeographische Studie. Berlin, E. S. Mittler & Sohn, [1937]. 92 p. (Veröffentlichungen des Instituts für Meereskunde an der Universität Berlin. Neue Folge. B. Historisch-volkswirtschaftliche Reihe, Hft. 12).

Tagliacozzo, G. Economisti napoletani dei secoli XVII e XVIII. Bologna, L. Cappelli, [1937]. LXVII, 456 p. (Istituto nazionale fascista di cultura, Roma. Classici del pensiero politico, 7)

Sociology.

Akademiia Naouk SSSR. Татарская АССР: материалы по истории Татарии второй половины XIX века. Москва, Академия наук СССР, 1936. (Матриалы по истории народов СССР, вып. 6).

[Tatar Republik material concerning the history of the Tatar region during the second half of the 19th Century].

v. I Аграрный вопрос и крестьянское движение, 50-70-х годов XIX в. [The agrarian question and the peasant movement during the years 1850-1870]. 1936, 512 p.

Economics.

Ishii, R Population pressure and economic life in Japan. London, P. S. King & son, 1937 xix, 259 p.

Katz-Foerstner, A Handbuch des tschechoslowakischen Wirtschaft. Basel, Wirtschaftsverlag, 1937. VI, 116 p.

MacLauring, W R Economic planning in Australia 1929-1936. London, P. S. King & son, 1937 xv, 304 p

Mariani, M Economia e finanza con dati di statistica finanziaria Bologna, L. Cappelli, 1937 132 p (Biblioteca scolastica Cappelli)

Statistics

Institut international de statistique Bulletin v 29. $3^{\text{ème}}$ livraison. Session d'Athènes, 1936 La Haye, 1937, 328 p.

Italie Istituto centrale di statistica. Annuario statistico italiano Anno 1937-XV. Roma, 1937

Union des marchands de soie de Lyon Statistique de la production de la soie en France et à l'étranger $66^{\text{ème}}$ année Récolte de 1936. Lyon, A Rey, 1937 37 p

Rural Economics

Federazione nazionale fascista impiegati tecnici e amministrativi di aziende agricole e forestali, Roma. L'organizzazione dell'azienda agraria nel quadro economico dell'autarchia nazionale Roma, 1937. 387 p. (Confederazione fascista lavoratori dell'agricoltura Federazione nazionale fascista impiegati tecnici e amministrativi di aziende agricole e forestali)

Forschungen auf dem Gebiete der Wirtschaftswissenschaften des Landbaus. Festgabe für Ernst Laur. Brugg, Buchdruckerei Effingerhof, 1937 672 p.

Istituto nazionale di economia agraria. Risultati economici di aziende agrarie negli anni 1934-35, coordinati e commentati dal Prof. Dario Perini Roma 1937. 427 p. (Studi e monografie, N. 18. III).

Martin, R. F. Income in agriculture 1929 1935. New York City, National industrial conference board, [1936]. xviii, 168 p. (National industrial conference board studies, no. 232).

Mexique. Dirección general de estadística. La reforma agraria en Mexico. Mexico, Departamento autonomo de publicidad y propaganda, 1937. 21 pls.

Pamfilov, S. F. Бухгалтерский учет сельскохозяйственного производства: совхозы и коопхозы. Москва, ПУНХУ Госплана СССР. В/О "Союзоргучет", 1935 282 p. [Bookkeeping results of agricultural production: the «sovkhoz» and «koopkhoz»].

Reventlow, H. I. Die Entwicklung des britischen Agrarschutzes. Berlin, P. Parey, [1937]. 139 p.

Thomsen, F. L. Agricultural prices. New York, McGraw-Hill book co., 1936. xi 471 p.

Internal Colonization.

Schmidt, F. und R. **Müller**. Die Kleinsiedlung. Die Bestimmungen über die Förderung der Kleinsiedlung vom 21. April 1936 mit den hauptsächlichsten noch in Kraft befindlichen Vorschriften. Eberswalde, R. Müller, [1936]. 160 p. (Handbücherei des Wohnungs- und Siedlungswesens hrsg. von Friedrich Schmidt [und] Joachim Fischer-Dieskau, Hft. 14).

Credit.

Die deutschen Hypothekenbanken. Beiträge aus der Praxis. Berlin, C. Heymann, 1937. XVI, 160 p. (Deutscher Bodenkredit hrsg. von Wilhelm Kalveram, Bd. 3).

Pagani, L. Il credito agrario in regime corporativo. Suoi aspetti fondamentali, suo carattere reale. Venezia, Istituto federale delle casse di risparmio delle Venezie, 1937. 127 p.

Qureshi, Anwar Iqbal. Agricultural credit: being a study of recent developments in agricultural credit administration in the United States of America. London, I. Pitman, 1936 xvii, 190 p.

Labour.

Bagiński, W. Nowy ustrój pracy w Niemczech. Warszawa, [Instytut spraw społecznych] 1935. VIII, 144 p. (Instytut spraw społecznych, Varsovie. Sprawy ustawodawstwa i ustroju pracy, nº 1). [Second title in English The new German system of labour organisation].

De Semo, G. Il contratto collettivo di lavoro: natura giuridica ed effetti 2ª ed. riveduta ed ampliata. Padova, «Cedam», 1935. XIII, 204 p.

Industries.

Willcox, O. W. Can industry govern itself? An account of ten directed economies. London, G. Allen & Unwin, [1936]. 285 p.

Commerce.

Chambre de commerce argentine en France, Paris. La situation du marché de la viande en France. rapport. Paris, 1937. 78 p.

Miscellaneous.

Afrique occidentale française. Comité d'études historiques et scientifiques. Études météorologiques sur l'Afrique occidentale française. Paris, Larose, 1937. 95 p. (Publications, Série B, nº 3).

Gréverend, G. Un agriculteur normand avant et pendant la Révolution: Jean Bucaille. Son milieu, sa vie, sa mort (1735-1793). Paris, P. Bossuet, 1930 343 p.

Latourette, K. S. The development of China. 5th ed. revised. Boston, Houghton Mifflin co., 1937. xii, 334 p.

Rode, P. Les primates de l'Afrique. Paris, Larose, 1937. XI, 223 p. (Publication du Comité d'études historiques et scientifiques de l'Afrique occidentale française. Série B, nº 2).

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MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

PRESENT TENDENCIES ON THE WORLD COTTON MARKET

SUMMARY — Introduction - The evolution of world production and trade — The share of the three main classes of commodities in world trade. — The share of cotton in world trade World cotton production The evolution of cotton prices — Relation between agricultural and industrial prices — Cotton policy in the United States — Cotton exports World cotton consumption - The consumption of artificial fibres The Soil Conservation and Domestic Allotment Act — The new trade agreements of the United States -- Conclusion

INTRODUCTION.

In March 1937 the League of Nations set up a " Committee for the Study of the Problem of Raw Materials " with the purpose of bringing about an economic rapprochement between the raw material producing and consuming countries. This committee studied the problems of the exploitation of natural resources, export restrictions, difficulties connected with payment, exchange control, high tariffs, etc. It continued its labours in the months of June and September of this year.

Almost at the same time (in April 1937) the International Labour Office called, on the initiative of the United States, a " Technical Tripartite Conference on the Textile Industry " in which twenty-seven countries took part, which examined both the economic aspects of the problem -- particularly competition on the world cotton market -- and the social aspects, such as the forty-hour week in the textile industry.

Raw materials—including cotton—appear once more to engage international attention after having been to some extent shelved throughout the crisis years.

The International Institute of Agriculture, which had, already in 1934, begun to show an increased interest in (among other products) cotton, published at the end of 1936 an exhaustive survey on the subject entitled " World Cotton Production and Trade " to permit, in its own words, " the presentation of a general picture of the tendencies revealed by the trends of production and of markets under the sway of the economic policy of to-day. "

In the present study we shall outline briefly the events which have struck the world cotton market and driven it off its traditional path, and shall endeavour to interpret their general significance.

1. — THE EVOLUTION OF WORLD PRODUCTION AND TRADE.

In order better to understand the position of cotton in the world economy we may sketch some general features of world production and trade in recent years

TABLE I. — *World Production and Trade 1929-1936* (1).

(1929 = 100)

	1930	1931	1932	1933	1934	1935	1936 (*)
World trade							
Value	81.0	57.9	39.1	35.2	33.9	34.7	37.3
Volume	93.0	65.5	74.5	75.5	78.0	82.0	85.5
Prices	87.0	67.5	52.5	46.5	43.5	42.5	44.5
World production	88.4	79.1	69.0	77.7	84.0	95.4	110.5

(*) Excluding Spain

As can been seen from the table, the value of world trade declined severely in the first years of the crisis 1929-1932 and reached its lowest level in 1934, at 33.9 per cent. In the succeeding two years, 1935 and 1936, the value of world trade rose, and in 1936 represented 37.3 per cent. of its value in the base year. As regards volume, world trade reached the lowest level—at 74.5 per cent.—in 1932, thus losing one quarter compared with 1929. In the following years, 1933-1936, the volume of trade showed a continuous rise and by 1936 it had reached 85.5 per cent. of the 1929 level. Prices showed a fall down to 1935, in which year they arrived at 42.5 per cent. of their 1929 level, rising however in 1936 to 44.5 per cent.

World production, like the volume of trade, reached its lowest point in 1932, at 69 per cent. of the level in the base year. After that it rose rapidly and in 1936 already exceeded by 10.6 per cent. the 1929 volume.

In consequence international trade—particularly if measured by value—was in 1936 appreciably behind world production. International transactions in goods have diminished with the diminution in international economic specialisation. For everywhere in the fields of national production and markets it is sought to bring about a completely controlled " totalitarian " economy and an independence as complete as possible from foreign countries.

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(1) REVIEW OF WORLD TRADE Geneva 1937, p 10, and *Monthly Bulletin of Statistics* League of Nations No. 6, June 1937, p 273

2. — THE SHARE OF THE THREE MAIN CLASSES OF COMMODITIES IN WORLD TRADE.

Within the framework of the large contraction of the world market, international trade in each of the three main classes of goods, in gold values, has shown divergent movements both in relation to total world trade and to the trade in the other two classes, as may be seen from the following comparative figures (1).

TABLE II. — *Trade in the Three Main Groups of Commodities as a Percentage of Total World Trade.*

	1929	1932	1933	1934	1935	1936
Foodstuffs	24.5	29	26.5	25	24.5	24
Materials, raw or partly manufactured	36	33	36	37	37.5	38
Manufactured articles . . .	39.5	38	37.5	38	38.0	38
Total . .	100	100	100	100	100	100

As emerges from the table, in 1929 the share of the first group—foodstuffs—in world trade equalled 25 per cent. of the total value. Subsequently, in 1932, at the deepest part of the depression when the total share of the other two classes—raw materials and manufactured articles—had been reduced to 4 per cent. less of the total, the share of foodstuffs rose to 29 per cent. of the total. With the development of the general tendency among the industrial countries to intensify their agricultural production and with the fall in world market prices of agricultural products the share of foodstuffs in world trade declined, to reach again in 1936 24 per cent.

As regards manufactured goods the decline in their share of world trade is more definite than that of foodstuffs. As a result of the industrialisation of the agricultural countries, and of the general economic crisis, their proportion fell from 39.5 per cent. in 1929 to 38 per cent. in 1934-1936, even though the prices of these articles, which are often under the control of cartels, have been maintained somewhat better than those of the first group.

Finally, the share of raw materials, which reached the lowest level, at 33 per cent. of the total in 1932, rose again in 1933 to its level in 1929 (36 per cent.) and continued to rise subsequently, reaching 38 per cent., or 2 points higher than in 1929, in 1936. The price level of this group in 1936 represented but 41.5 per cent. of the 1929 level, a level, that is, roughly equal to that of the food group—42.5 per cent. of the 1929 level. But as regards the volume of trade in raw materials, this rose continually after 1932; in 1936 the world market absorbed 95.5 per cent. of the 1929 volume of raw materials, though total world trade represented in contrast only 82 per cent. of the 1929 volume.

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(1) REVIEW OF WORLD TRADE 1936, p. 14.

These figures, which we do not intend to comment upon in detail in this context, show the changes in the relative importance in world trade of the three groups of merchandise in the period of depression and during the present economic recovery. Manufactured articles no longer hold, as in 1929, the most important position in world trade; instead, owing to the movement, observed throughout the world, towards economic autarchy, the raw materials class has now the largest share of world trade.

This phenomenon of an increasing importance of all kinds of raw materials, becomes even more evident when expressed in absolute, instead of relative, figures. The total world exports of the most important raw materials (cotton, wool, rubber, coal, mineral oils, petrol, copper, tin and tin ore) as well as of the most important foodstuffs (wheat, maize, sugar, butter, cheese, chilled and frozen meat, coffee and tea) were, in millions of former gold dollars, as follows: —

	1932	1934	1935
Total Raw Materials	1,477	1,520	1,541
Total Foodstuffs	1,514	1,149	1,078

As these figures show, the value of foodstuffs exports decreased by almost one third between 1932 and 1935 whilst that of raw material exports increased by 64 million gold dollars in the same period. Again, whilst in 1932 the value of exports of foodstuffs exceeded that of raw material exports by 37 million gold dollars, in 1935, by contrast, the value of raw material exports exceeded that of foodstuffs exports by 463 million gold dollars.

3. — THE SHARE OF COTTON IN WORLD TRADE.

Of the nine principal raw materials mentioned above, cotton occupies easily the leading place in world trade. The value of cotton exports in 1932 equalled, at an average price of 160.5 dollars per ton, 497 million gold dollars, or somewhat above a third (33.6 per cent.) of the value of the total exports of these nine raw materials. In 1934, at a slightly lower price of 159.5 gold dollars per ton, the total value of cotton exports fell to 444 million gold dollars and, in 1935, at an average price of 162.7 gold dollars, it rose to 468 million gold dollars, in that year representing somewhat less than one third (30.4 per cent.) of the total exports of the raw materials. In 1932 exports of coal, which amounted to 255 million gold dollars, held second place, whilst third place was occupied by another textile, wool, the value of the exports of which equalled 214 million gold dollars. In both 1934 and 1935 the value of coal exports fell to 211

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(1) Review of World Trade 1936, p. 59.

million gold dollars, whilst that of wool exports rose to 272 and 264 million gold dollars respectively, thus taking second place in world raw material exports, coming immediately after cotton. The importance of the exports of the two textiles, cotton and wool, emerges from the fact that together they accounted for almost half of the total exports of principal raw materials, and represented a value of 732 million gold dollars in 1935.

Thus, just as raw materials have taken the first place in world trade in recent years, so cotton represents the largest item in the whole raw material trade. Of the total world trade in 1935, which amounted to 11,457 million gold dollars, cotton represented more than 4 per cent. compared with 2 per cent. in the case of wheat. These figures characterise sufficiently the position of cotton not only in relation to the other textiles but also in relation to the whole group of raw materials.

4. — WORLD COTTON PRODUCTION.

Having examined briefly the changes which have occurred in the relation of cotton to the other raw materials we shall now study in somewhat more detail the economic position of cotton itself on the world market as regards both supply and demand.

Turning first to world cotton production, this has developed at a rapidly increasing pace. In 1870, after the end of the American Civil War, world cotton production amounted to 6,416,000 bales (of 478 lbs.). Ten years later, in 1880, it had risen to 8,723,000 bales, an increase of 2.3 million bales, or 35.96 per cent. In 1890 world production equalled 12,479,000 bales, that is, nearly twice (194.5 per cent.) that of 1870. At the opening of the twentieth century, in 1900, there was a further increase, to 14,607,000 (227 per cent. of the 1870 production). During the twentieth century production continued to increase to an ever greater degree, reaching in 1910 19,930,000 bales (310.63 per cent. of 1870) and in 1914, at the beginning of the Great War, 25,049,000 bales (390.41 per cent.) or almost four times as great a quantity as in 1870.

During the war and immediate post-war years world cotton production declined, at times rather appreciably; in 1920 it fell to 20,348,000 bales (317.14 per cent.). Following upon the heavy damage caused by the boll-weevil in the United States, world production fell in 1921 to 15,240,000 bales (237 per cent.) thereafter rising without interruption to 26,647,000 bales (415.72 per cent.) in 1925, thus exceeding for the first time the 1914 volume of production. In the succeeding years (1926-1937) this quantity was only to be exceeded three times; in 1926 at 27,970,000 bales (435.94 per cent.), the highest level of production reached before the crisis, in 1936, in spite of the drought in America, when the figure rose to 29,751,000 bales (463.7 per cent.), and in 1937, at 37,073,000 bales (577.82 per cent.). Thus in a period of 68 years world production increased by more than five and a half times.

The following figures indicate the evolution of world cotton production since 1880 compared with the growth of world population.

TABLE III. — *World Population and World Cotton Production.*

Year	World population	As percentage of 1880	World cotton production	As percentage of 1880
1880 (1)	1,439,000,000	100	8,723,000	100
1900 (2) . . .	1,543,000,000	107.23	14,607,000	167.45
1920 (3) . .	1,811,012,000	125.05	20,348,000	233.27
1934 (4)	2,066,201,000	143.50	22,873,000	262.21
1935 (4) . .	2,082,106,000	144.69	26,262,000	301.07

(1) ZISCHKA. La guerre secrète pour le coton. Paris, 1934, p. 208.

(2) HANDWORTERBUCH DER STAATSWISSENSCHAFTEN. IV. Ausgabe, 1924 Jena, 2er Band (Art. Bevolkerungswesen)

(3) APERÇU DE LA DÉMOGRAPHIE DES DIVERS PAYS DU MONDE. Institut international de Statistique La Haye, 1929, p. IV.

(4) INTERNATIONAL YEARBOOK OF AGRICULTURAL STATISTICS. International Institute of Agriculture Rome, 1937, p. VIII.

As these figures show, world cotton production more than trebled between 1880 and 1935 whilst world population only increased one and a half times. Consequently, not only has the world become more rich in cotton but also the production of cotton per head has increased.

Table IV indicates world cotton production during the years preceding the crisis, during the crisis, and during the period of recovery, as well as the changes which have occurred in the respective percentage shares of cotton production of the most important producing countries which account for 98-99 per cent. of world production.

As a first conclusion from this instructive table emerges the fact that world cotton production as a whole has in general always been greater than for the average of the pre-crisis years 1923-24—1927-28, with only the two exceptions of 1932-33 and 1934-35. In the last year, 1936-37, world cotton production reached the unprecedented figure of 66,855,000 quintals or 125.7 per cent. of the pre-crisis figure.

But the distribution between the various countries of this increased wealth has changed very considerably. The share of the United States in world cotton production has declined very appreciably, from almost 58 per cent. to only 40 per cent. of the total world cotton supply, a loss of 18 per cent. of that total.

The share in the world cotton market of India, which holds second place among the cotton producing countries, has also declined somewhat, except in 1935-1936 when her share in world production was equal, at 19 per cent., to that before the crisis. However there is a difference between the decline in the Indian supply and that of the United States in that, in India, after cotton production had reached its lowest level, in 1931-32, with 12.3 per cent. of the world total, the percentage subsequently rose continually, reaching 17 per cent. in 1936-37, the absolute production figures at the same time also increasing considerably.

China, and, especially, U. S. S. R., both increased their cotton production appreciably during this period, the percentage share of the first named country rising from 8 to 12.7 per cent., and of the second from 2.7 to 11.5 per

Table IV. — *World Cotton Production, in Thousands of Quintals, and Production of each Producing Country in Thousands of Quintals and as a Percentage of Total Production, in the Years of Depression and Recovery Compared with the Years Preceding the Crisis.*

Country	Average 1923-24/1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
United States . . .	30,704	31,391	32,143	30,206	37,066	28,189	28,289	20,894	23,066	26,858
%	*57.72*	*54.98*	*56.88*	*54.65*	*62.86*	*55.42*	*50.01*	*41.80*	*41.43*	*40.17*
India	10,324	10,491	9,513	9,478	7,270	8,450	9,268	8,812	10,765	11,443
%	*19.44*	*18.38*	*16.84*	*17.15*	*12.33*	*16.61*	*16.38*	*17.63*	*19.33*	*17.12*
China	4,287	5,344	4,587	5,326	3,869	4,902	5,911	6,775	4,925	8,486
%	*8.06*	*9.36*	*8.12*	*9.64*	*6.56*	*9.64*	*10.45*	*13.55*	*8.84*	*12.69*
U. S. S. R.	1,414	2,545	2,773	3,446	4,064	4,029	4,078	3,634	5,307	7,700
%	*2.66*	*4.46*	*4.91*	*6.23*	*6.89*	*7.92*	*7.21*	*7.27*	*9.53*	*11.52*
Egypt	3,191	3,625	3,833	3,718	2,856	2,227	3,853	3,394	3,835	4,244
%	*6 —*	*6.35*	*6.18*	*6.73*	*4.84*	*4.38*	*6.81*	*6.79*	*6.89*	*6.35*
Brazil	1,296	1,196	1,267	1,022	1,248	987	2,165	3,019	3,751	3,920
%	*2.44*	*2.09*	*2.24*	*1.85*	*2.12*	*1.94*	*3.83*	*6.04*	*6.74*	*5.86*
Peru	489	487	656	519	507	526	602	749	852	810
%	*0.92*	*0.85*	*1.16*	*0.94*	*0.86*	*1.04*	*1.06*	*1.50*	*1.53*	*1.21*
Argentina	184	287	312	346	367	325	434	640	810	529
%	*0.39*	*0.50*	*0.55*	*0.63*	*0.62*	*0.64*	*0.77*	*1.28*	*1.45*	*0.74*
Mexico	482	604	534	385	456	220	565	483	543	779
%	*0.91*	*1.06*	*0.95*	*0.70*	*0.77*	*0.43*	*1 —*	*0.97*	*0.98*	*1.17*
Uganda	281	370	234	343	376	535	518	459	590	600
%	*0.53*	*0.65*	*0.41*	*0.62*	*0.64*	*1.05*	*0.92*	*0.92*	*1.06*	*0.90*
Anglo-Egypt. Sudan	185	310	289	216	461	255	286	494	436	521
%	*0.35*	*0.54*	*0.51*	*0.39*	*0.78*	*0.50*	*0.51*	*0.99*	*0.78*	*0.78*
Turkey	193	246	218	160	197	61	284	352	522	625
%	*0.36*	*0.43*	*0.39*	*0.29*	*0.34*	*0.12*	*0.50*	*0.70*	*0.94*	*0.93*
Iran	160	199	147	102	229	155	312	278	280	340
%	*0.30*	*0.35*	*0.26*	*0.18*	*0.39*	*0.31*	*0.55*	*0.56*	*0.50*	*0.51*
Total production of countries shown .	53,190	57,095	56,506	55,267	58,966	50,861	56,565	49,983	55,682	66,855
As percentage of 1923-24/1927-28 .	*100 —*	*107.34*	*106.23*	*103.90*	*110.86*	*95.62*	*106.34*	*93.97*	*104.68*	*125.69*
Total world production	54,070	58,060	57,560	56,340	59,700	51,800	57,700	51,300	57,400	68,600

cent. during the years in question. Egypt, the larger producer in the world of the highest class, long staple cotton, increased her production both relatively and, to a noteworthy degree, absolutely, especially in 1932-33, when she produced 4.4 per cent of the world total, and subsequently, the percentage share rising to 6.4 per cent. in 1937.

In the three cotton-growing countries of South America, Brazil, Peru and Argentina, the increase in cotton production has been very marked, especially in the case of Brazil, the share of which, having represented 2.4 per cent. of world production before the crisis, has risen to 6 per cent., almost equal, therefore, to that of Egypt. The other countries enumerated in table IV—Mexico, Uganda, Anglo-Egyptian Sudan, Turkey and Iran—have all likewise increased their share in world cotton production.

Thus the structure of the world cotton market has undergone very important changes in regard to production, in that all the cotton growing countries, with the single exception of India, have extended their production at the expense of the United States.

Over a long period of years it had always been sought to lessen the dependence of the world textile industry on the American cotton market. Looking at the situation in its historical perspective it may be recalled that already at the time of the American Civil War, in which the industrial North fought against the agricultural South, the European textile industry had suddenly to face new problems, in having to procure its cotton supplies outside the traditional source. The severe disturbances caused by the struggle for the new agricultural and social constitution of the South of the United States, occasioned, about 1860-70, a new geographical distribution of cotton growing. But from 1870 onwards this crisis diminished considerably in severity, for the United States increasingly secured its dominant position in world cotton production, of which its share in 1880 reached 73 per cent.; in other words, the world textile industry then depended to the extent of three quarters of its purchases of its raw material on the United States. Even deducting the quantity of cotton consumed by the United States' own cotton industry—which at this time was the second largest in the world, coming immediately after the English industry—a quantity equalling in 1880 about 1.8 million bales, the remainder, about 4,557,000 bales, was destined for export and represented double the quantity of cotton produced by all the other countries outside the United States, which amounted to 2,366,000 bales. In consequence the world outside the United States was obliged to obtain two thirds of the cotton it consumed from the American market.

However, towards the end of the nineteenth century the ratio of United States cotton production to world production began to show a declining movement and in 1900 it represented 69.3 per cent., or 10,123,000 bales out of a world total of 14,607,000.

In the two last decades of the last century the share in production of cotton of countries other than the United States increased by 4 per cent. of the world total. Relatively speaking, that was not an important increase, but what was of significance was the tendency in the world economy to seek more and more for new sources of cotton outside the United States.

In the twentieth century this evolution of the world economy not only continued but was accentuated. The birth of new textile industries in many agricultural countries, the further development of the old industrial countries which produced cotton to a large degree for export, and the ever increasing absorption of the home production by the American cotton industry—which had in the meantime become the foremost textile industry in the world—all these factors had as a consequence not only the birth of new centres of cotton cultivation but also the dedication of greater attention to the older areas in which this textile fibre was cultivated.

The passionate search for raw materials in general and agricultural raw materials for industrial processing in particular, characterises the whole economic life of the peoples of the earth. In most recent times the struggle for raw materials and for the domination of textile fibre has become more intensive and the scene of the struggle has been extended to cover the whole surface of the earth.

The evolution of the world statistical position of cotton in the last twelve years, in absolute and relative figures, and the relative development of American cotton and outside growths may be seen from the following table.

TABLE V. — *World, American and Outside Cotton Production, (in Absolute and Relative Figures).*

Year	World production		American production			Outside growths		
	bales	as per centage of 1926	bales	as per centage of 1926	as per centage of world production	bales	as per-centage of 1926	as per-centage of world production
1926	27,970,000	100	18,162,000	100	64 93	9 808,000	100	35 07
1927 .	23 353,000	83 49	12,957 000	71 34	55 48	10,396,000	106 —	44 52
1928 . .	25 611,000	91 57	14,555,000	80 14	56 83	11,056,000	112 72	43 17
1929 . .	26,592,000	95 07	14,716 000	81 03	55 34	11,876,000	121 08	44 66
1930 .	25,259,000	90 31	13,873,000	76 38	54 92	11,386,000	116 09	45 08
1931	26,464,000	94 61	16,877,000	92 92	63 77	9,587,000	97 75	36 23
1932 . .	23,613,000	84 42	12,961 000	71 36	54 89	10,652,000	108,60	45 11
1933 . .	26,111,000	93 35	12,712,000	69 99	48 69	13,399,000	136 61	51 31
1934 . . .	22 873,000	81 78	9,576,000	52 73	41 87	13,297,000	135 57	58 13
1935 . . .	26,262,000	93 89	10,495,000	57 79	39 96	15,767,000	160 76	60 04
1936 . . .	29,751,000	106 37	12,396,000	68 25	41 67	17 355,000	176 95	58 33
1937 (prov) .	37,073,000	132 54	17,573,000	96 76	47 40	19 500,000	198 82	52 60

A glance at this table shows that the contraction of American cotton production was much more pronounced than that of world cotton production, especially in the years after 1933, after the United States intervened in the cotton market to raise prices and to diminish production. The American crop reached its smallest size in 1934, in which year it was still further diminished by drought, and was little more than half the size (52 73 per cent.) of the 1926 crop. In 1935 and 1936 and especially in 1937 production increased compared with 1934, representing respectively 58, 68 and 97 per cent. of the 1926 crop.

But during this same period the production of outside growths not only did not diminish—except in 1931 when it was about 2 per cent. below the 1926 level—but increased substantially, the production in 1937 representing 199 per cent. of that of 1926. It is only owing to this great progress in the production of outside cotton growths that it was possible to compensate for the heavy contraction of American cotton on the world market and that consequently the total volume of cotton in the world was not affected during all these years.

The relative pace of the production of American cotton and outside growths is shown characteristically by the development of production of the two sources measured against world production during the years in question. In 1926 American cotton represented 65 per cent. of world production and outside growths 35 per cent., American production being thus almost double that of the outside growths. In the following period the percentage of American cotton fell year by year, so much so that in 1933 the percentage of outside growths in world production already exceeded that of American cotton, the former being 51.2 and the latter 48.7 per cent. This tendency continued with the result that in 1935 outside growths accounted for somewhat more than 60 per cent. of world cotton production and American cotton for somewhat less than 40 per cent. For 1937 only provisional figures are at present available, but it appears that the fundamental position was the same as in 1935, though in the meantime an improvement in the position of American cotton may have taken place.

The relative importance of these two different sources has thus been radically changed in the last twelve years, a short period, indeed, but full of extraordinary events of great importance for the world economy. Whereas in 1926 —as, indeed, in 1913—the quantity of American cotton was twice as large as that of all outside growths, in recent years the quantity of the latter entering the world cotton industry has been much greater than the quantity of the former.

But the position of American cotton on the world market is due, besides to the economic and historical causes which we have described, also to the agricultural policy, and particularly the cotton price maintenance policy pursued during the crisis by the United States. It would take us too far afield to go here into the details of these causes, and a brief consideration thereof we reserve until later: for a more detailed study we may refer to the Institute's " World Cotton Production and Trade " mentioned in the introduction.

5. — THE EVOLUTION OF COTTON PRICES.

The evolution of cotton prices, which reflects all the economic ups and downs of cotton on the world market was, during the period 1926 to 1937 of a very characteristic kind, as is demonstrated by the following figures.

During the last decade prices have fallen from their highest level of about 20 cents per lb. attained during 1927-28 and 1928-29—the high point of the prosperity period—to 6.3 cents in 1931-32, equal to less than a third of the pre-crisis prices.

TABLE VI. — *Prices of Middling Cotton, New York, 1926-1937.*
(in cents per lb.).

1926-27	15 15	1936 December (Average)	11.86
1927-28	20.42	1937 January (»)	11 56
1928-29	19 73	» February (»)	13 15
1929-30	16 60	» March (»)	14 38
1930-31	10 38	» April (»)	14 08
1931-32	6 34	» May (»)	13 33
1932-33	7 37	» June (»)	12 78
1933-34	11 09	» July (»)	12 22
1934-35	12 44	» August (»)	10 41
1935-36	11 75	» September (»)	9 04
		» 15 October	8 56

With the slow recovery of the world economy prices rose in 1932-33 to 7.37 cents per lb., increasing thus by one cent. The rising movement continued in the following years with a pronounced tendency of prices to come back to the pre-crisis level. But there was the fundamental difference in the situation, in that, whereas the high prices in the earlier period coincided with a large production and consumption of American cotton, and the factors determining the simultaneous increase in prices and quantities lay in the whole world economy and the prosperity thereof, in the later period—in which the restrictionist policy of the United States was put into effect by the Agricultural Adjustment Act and reinforced by unfavourable atmospheric conditions such as the drought in 1934 and 1936—they resulted from the diminution of national cotton production and the increased world demand for cotton.

During the present year, Middling in New York in the month of March reached 14.38 cents per lb., *i. e.* a level which had not been reached since 1920-1930 Now, as we have already observed, according to provisional data the United States crop was very good in 1937, at 17,573,000 bales, whilst the production of outside growths in 1937 had also increased very considerably, reaching the particularly large figures of 19,500,000 bales. In consequence the price is now in decline, reaching on 15 October 1937 a level of 8.56 cents per lb., somewhat higher than in 1932-33.

The best way to grasp clearly the importance of this evolution of prices would be to analyse the movement of cotton prices over a long period. We may base our examination on Table VII, which indicates cotton prices over more than half a century—from 1872 to 1925.

TABLE VII. — *The Course of Cotton Prices 1872-1925.*
(in cents per lb).

1872-73	20 13	1915-16	11 98
1875-76	12 95	1916-17	19 28
1880-81	11 42	1917-18	29 68
1885-86	9 41	1918-19	31 00
1890-91	9 19	1919-20	38 29
1894-95	6 44	1920-21	17 89
1895-96	8.13	1921-22	18 92
1898-99	6 00	1922-23	26 30
1900-901	9 25	1923-24	31 11
1905-06	11.25	1924-25	24.74
1910-11	14.56	1925-26	20.53

From the table it will be seen that one must look back over more than half a century of cotton history to find prices almost as high as during the prosperity years 1927-29, as far back indeed as 1872-73, when the painful consequences of the Civil War had worn off, and prices equalled 20.13 cents per lb. Subsequently, in the last thirty years of the nineteenth century, prices fell more and more, reaching 6.25 cents in 1897-98 and 6 cents in 1898-99—a price, that is, exactly as low as in the crisis year 1931-32. The fall in cotton prices at the end of the last century coincided in general with very large crops, which in the United States began for the first time to exceed 10 million bales: thus in 1894 the crop equalled 10,026,000 bales; in 1897, 10,985,000; in 1898, 11,435,000 bales (of 500 lbs.).

With the beginning of the present century the general tendency of prices was upwards until the war, for they rose at a moderate rate from a level of 9.25 cents per lb. in 1900 to one of 14.56 cents in 1910-11. Then, as production in the United States increased appreciably between 1911 and 1914 and in the latter year reached 16 million bales, the price fell again in the first year of the war to 9.10 cents per lb. in 1914-15. During the war years a new big rise in prices occurred which brought them up to 38.29 cents per lb. in 1919-20, probably the highest level of cotton prices recorded in the United States.

The crisis of the first post-war years had a depressing effect on prices, which fell in 1920-21 and 1921-22 to 17.89 and 18.92 cents per lb. respectively. The poor crop in the United States during the three years in which the boll weevil caused very serious damage occasioned a new rise in cotton prices to 26.30 cents per lb. in 1922-23 and even to 31.11 cents in 1932-34. The highest point in the price curve was in fact reached for the second time within the space of 6 to 7 years—though at a somewhat lower level.

Thus, as we have seen, the prosperity years closed in 1929-30 with a cotton price of 16.60 cents per lb., half, indeed, of the price in 1918-1919, but nevertheless higher than the 13.11 cents in 1913-14 on the eve of the war or still more than the 9.10 cents in the first year of the war. The price in 1929-30 represents the highest point of the cotton price curve from that date to the present.

One important fact which emerges from the rapid glance at the history of cotton prices in the last 65 years was that the price of 6.3 cents per lb., reached in 1931-32, the year of deepest economic depression, was lower than any price recorded in the first thirty years of the present century, a circumstance which had serious consequences on the economic situation of farmers.

6. — RELATION BETWEEN AGRICULTURAL AND INDUSTRIAL PRICES.

The difficult situation of cotton growers is revealed most strikingly by an examination of the relation between agricultural and industrial prices, the so-called " scissors, " before and after the crisis. From the comparison in Table VIII it emerges that, from an absolute point of view, both indices, agricultural and industrial alike, fell rapidly each year (except in 1929 as regards the agricultural index which rose in that year compared with 1928). But there was a fundamental difference in that the agricultural prices index had already in 1931 fallen appreciably below the pre-war level whilst the industrial level was still, in 1932, above the pre-war level. The consequence was that already in 1928 the relation between the index of agricultural prices and that of industrial prices was more unfavourable than before the war, or, in other words, from the period of prosperity onwards the prices which the farmer obtained for his products on the free market had fallen in relation to those he had to pay for industrial good on a market protected by custom duties and tariffs—a circumstance which naturally could not fail to reduce the purchasing power of the farming population and the productive rythm of industrial activity.

TABLE VIII. — *Relation between Agricultural and Industrial Prices.*

(August 1909-July 1914 = 100).

Year	Agricultural prices	Industrial prices	Ratio of agricultural to industrial prices
1928	139	153	91
1929	146	152	95
1930	126	145	87
1931	87	124	70
1932	65	107	61

This difference between the prices of agricultural and of industrial products had as a result that, for example, in 1931-32, though the production of cotton in the United States was greater than in 1927-28—14,898,271 bales compared with 14,443,934 bales—the returns from the sale of cotton were in 1932 only about one third of those in 1927-28, namely 457 million dollars against 1,440 million. It is well known that the American farmers sell their products, including cotton, on a free world market, unprotected by customs duties, whilst the American market for industrial articles has always been protected by high tariffs. In their capacity as producers, in selling their products, and in their capacity as consumers, in buying the manufactured goods of which they have need, the cotton farmers as a social class are thus seriously burdened compared with other groups of producers in the country.

7. — COTTON POLICY IN THE UNITED STATES.

The intervention of the American Government in the cotton market during the depression period, aiming at softening the effects of the crisis, was very active. Under the *Agricultural Marketing Act* there was set up, on 20 October 1929, a central body, the Federal Farm Board, for the purpose, *inter alia*, of maintaining cotton prices at a reasonable level by holding cotton stocks off the market.

Loans on cotton were granted, up to a certain price of cotton, to farmers, to enable them to refrain from precipitate selling. For the marketing of long staple cotton the Board acted through the *Staple Cotton Co-operative Association*, and, for short staple, through the *American Cotton Co-operative Association*. In each case there was guaranteed to the farmers, though to a different degree, a price for cotton which thus made them almost independent of cyclic fluctuations in the price of cotton on the world market.

The Federal Farm Board also made use of a whole series of other organisations such as the *Staple Cotton Discount Corporation* founded 5 June 1930 and the *Cotton Stabilisation Corporation*. All this superstructure of the Federal Farm Board had, however, to be abandoned after three years (1929-30 to 1931-32), for the goal which had been aimed at, namely, to maintain, in the midst of a general crisis, the price of cotton at a parity with the pre-war level, had been shown to be unattainable. During the third and last year of the activity of this organisation, the prices, as we have shown above, fell almost to one-third of their level in 1929-30.

Now, though the original aim was not given up, the means by which it was to be attained were developed further in that, from now on, the various parts of the cotton programme—raising of prices, granting of loans, market control—were no longer isolated one from the other and without strong cohesion, as under the free co-operative action of the Federal Farm Board, but instead, all formed part of one organic system. The policy embodied in the Agricultural Adjustment Act which was promulgated in May 1933 meant henceforward the direct intervention of the State in the United States cotton market. The action of the Government was directed more than in the past towards the reduction of the area under cultivation through legislation, and occasioned a reduction in such areas of more than 10 million acres. At the same time a money equivalent was paid to the cotton farmers for the areas withdrawn from cotton growing, that is, a cash payment calculated according to the average yield and varying between 7 and 20 dollars per acre, or instead, a cash payment plus a cotton option.

To finance this undertaking a processing tax of 4.2 cents per lb. net weight on all cotton consumed in the factories was introduced from 1 August 1933. But this programme too was to have but a transitory character in the United States cotton policy, for it was all too quickly shown that the reduction of the cotton planted area was not sufficient to prevent the obtaining of an ever increasingly larger yield per unit of land so long as the prices of cotton were sufficiently guaranteed. Thus the area under cotton in the United States declined from 45,341,000 acres in 1928-1929 to 35,939,000 acres in 1932-33, a diminution of 20.7 per cent., whilst the cotton crop in the corresponding years only fell from 14.6 to about 13 million bales, a diminution of hardly 11 per cent.; for at the same time the yield per acre increased from 153 to 173.3 pounds.

The development of cotton policy during the crisis was logically completed by the *Bankhead Act* published on 24 April 1934, by which was established a plan affecting cotton production itself, controlling the volume and fixing production quotas for the farmers. Taxes were imposed both on quantities of cotton produced and on quantities marketed in excess of the quantities fixed under the law. The *Bankhead Act* thus changes the situation in that now, instead of the *area* under cultivation being controlled as thus far had been the case—whilst the farmer was in no way impeded from influencing the crop, employing more fertilizer, and recuperating thus through a higher yield what his contract in regard to area had obliged him to give up—the cotton crop was limited by the fixing of quotas.

As regards the raising of the price of cotton—the principal aim of the governmental intervention on the cotton market—a certain success was undoubtedly registered, for prices in 1934-35—as seen above—were almost twice as high (12.44 cents per lb.) as in 1931-32 (6.34 cents.). But to obtain this aim cotton production was placed too much in the background. The high level at which American cotton prices were maintained and, at the same time, the reduction of production, favoured the extension of cotton production to other zones of the world which profited considerably from the American cotton policy. In consequence, that which the American farmers gained from the artificial maintenance of prices on the domestic market they have at the same time lost by the shrinking of exports on the international market. Thus, as W. L. Clayton rightly says (1): " If the State of Texas with about 40 per cent. of the cotton acreage of the U. S., should attempt, irrespective of any action by the other twelve cotton states, to fix and maintain an artificial price for Texas cotton, all informed people would agree that such a course would end in failure. Yet the U. S. which occupies much the same relative position in the cotton world as Texas occupies in the cotton South, has been attempting since October 1929, to do just that. The technique employed has varied from time to time, but the thing attempted—the raising of the world price of cotton has remained always the same."

Here we touch upon a very important question of the cotton policy of the United States during the crisis years, namely just how far it is possible for one country to raise the price of a world export product, such as cotton, on the domestic market, without thereby doing itself damage on the world market and without threatening its vital interests to the benefit of other cotton growing countries. There is a point at which the result of the reduced volume of cotton exports can still be balanced by an artificially high cotton price. But once this critical point is passed, and the prices raised too much, the negative factor then becomes dominant—the demand of foreign markets and the value of the product sold diminish. This critical point in world economic development is not always easy to perceive, for the momentary temptation to raise prices prevents a correct appreciation of the succeeding results.

The cotton policy of the United States, which was designed, with the best will, to help the home farmer has not entirely achieved the desired results, for though the world seeks autarchy and all sorts of obstacles are consciously placed across the path of international trade, the economic ties between the various parts of the world are still too close for the achievement of an autonomous economic policy to be possible in a particular domestic market without its eventual negative effects being felt on the world market.

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(1) CLAYTON, W. L.: Our Vanishing Markets. *The Cotton Crisis.* Institute of Public Affairs, Dallas (Texas) 1935, p. 25.

For the 1937 cotton crop, once more it is to be tried to fix cotton prices by the granting of loans to farmers at the rate of 9 cents per lb. for Middling. But the price maintenance policy becomes more complicated in proportion as the share of American cotton on the world markets decreases and that of outside growths increases.

8. — COTTON EXPORTS.

We may now examine the movement of United States cotton exports in relation to average prices. The export situation is indicated in Table IX.

TABLE IX. — *United States Cotton Exports.*

(in thousands running bales, counting round as half bales, linters not included).

1927-28	7,630	1932-33	8,426
1928-29	8,053	1933-34	7,552
1929-30	6,697	1934-35	4,816
1930-31	6,820	1935-36	6,040
1931-32	8,754	1936-37	5,689

The evolution of exports shows, it will be seen, a rather wavy movement. What, at first sight, may seem strange, is that exports reached, at the deepest point of the crisis—in 1931-32—their highest level, at 8.8 million bales. Account however must be taken of the fact that the crop of that year had been very large, at almost 17 million bales. Prices were also, as we have seen above, lowest in this period (6.3 cents per lb.). At the same time American cotton stocks accumulated during the same year to more than 13 million bales, that is, the highest level they had ever reached, equal to a moderate to good American crop. Since 1928-29 stocks increased without interruption, rising from 4,517,000 bales in that year to 13,263,000 bales in 1931-32, whilst prices also fell. Since 1931-32 exports generally have declined whilst production has been very much reduced and stocks lower.

The cotton exports of the four principal cotton exporting countries were, during the last two commercial seasons, as follows (in thousands of bales):—

	1935-36	1936-37
United States	6,040	5,689
India	3,094	3,709
Egypt	1,695	1,828
Brazil	743	1,072
	11,572	12,298

Thus as can be seen from these figures the increase in total exports during 1936-37 is due entirely to the increases in Indian, Egyptian and Brazilian exports, whilst those of the United States declined.

The competitive capacity on the world market of the three principal cottons, American, Indian and Egyptian, is determined by the relative movements of their prices, as may be seen from Table X, in which prices are given in pence per lb and as a percentage of Middling prices, at Liverpool.

TABLE X — *American, Egyptian and Indian Cotton Prices on the World Market and their World Market Relationship 1927-1937*

Year	Middling pence per lb	Percentage on middling	Egyptian Sakellaridis pence per lb	Percentage on middling	Indian Broach (f g) pence per lb	Percentage on middling
1927	9 54	100	16 84	176 52	8 26	86 58
1928	10 92	100	19 27	176 46	9 22	84 43
1929	10 29	100	17 02	165 40	8 37	81 34
1930	7 49	100	12 05	160 88	5 26	70 23
1931	5 10	100	7 81	153 14	4 15	81 37
1932	5 24	100	7 25	138 36	4 85	92 56
1933	5 55	100	7 55	136 04	4 67	84 14
1934	6 68	100	8 61	128 89	5 04	75 44
1935	6 70	100	8 65	129 10	5 71	85 22
1936	6 70	100	9 97	148 81	5 41	80 75
1937 January	7 20	100	10 26	142 50	5 78	80 85
February	7 30	100	10 00	136 99	5 68	77 81
March	7 87	100	11 76	149 43	6 01	76 37
April	7 60	100	12 05	158 55	6 07	79 87
May	7 30	100	11 30	154 79	5 99	82 05
June	7 06	100	10 54	149 29	5 94	84 14
July	6 68	100	9 72	145 51	5 61	83 98
August	5 88	100	9 22	150 80	4 99	84 86
September	5 36	100	8 77	163 62	4 47	83 40

From this table it may first be noted that in 1927, putting the price of middling at Liverpool equal to 100 the price of Indian cotton equalled 86 6 and of Egyptian 176 5 This relationship changed in the years immediately following, but the general tendency was to maintain a lower, more favourable ratio of Indian and Egyptian cotton prices to middling, in other words, these two cotton sorts became relatively cheaper and more capable of competing with American cotton than before the crisis The ultimate result was that in 1934 in the period of the Agricultural Adjustment Act policy the price of Indian cotton represented only 75 4 per cent , and of Egyptian cotton 129 per cent of that of American Cotton Other economic factors remaining equal, this difference in prices rendered these two outside growths more attractive on the world market than American cotton. This price movement contributed much to the losses sustained by American cotton in foreign markets

With the abolition of the policy of the Agricultural Adjustment Act the ratio between the prices of American cotton and outside growths improved, that is, American cotton became relatively cheaper than the other cottons and in consequence more capable of meeting competition on the world market, though by September 1937 the pre-crisis position had not been reached

9. — WORLD COTTON CONSUMPTION.

If the United States cotton price policy in the first place strongly stimulated the production and export of cotton of all the other cotton growing countries, their commercial policy, in turn, tended further to turn the cotton importing countries away from America and towards them. The structure of American foreign trade is generally characterised by an active commercial balance. The amount by which exports exceed imports has fluctuated between averages of about 500 million dollars in the pre-war years, about 1,000 million in 1924-28, 500 million again in 1934 and 250 million in 1935, but the balance has always been active, as it was before the war, when the United States was a debtor country which required an export surplus in order to maintain its balance of payments in equilibrium. As, however, is well known, the international credit position of the United States has radically changed. At the beginning of the Great War the United States owed the rest of the world about 2,700 million dollars. After the war the position changed radically in that from a debtor country the United Staes became a creditor country, to which the world owed in all, in 1919, more than 14,000 million dollars. In 1928, immediately before the world crisis, foreign debts to America reached to more than 16,000 million dollars (1).

The effects of the traditional American high tariff commercial policy, and of the new agricultural policy designed to maintain artificially high prices, combined with the ideology, which has been carried over from the pre-war years, of a debtor country, have been to prejudice the foreign trade of the United States in that foreign countries have had diminished the only possibility of paying for American exports. Thus as the United States Minister of Agriculture says " The problem is not of American cotton but of American dollars in the hand of those foreign nations which want cotton (2). "

With the aid of the table below, which gives both total world consumption of all cotton and total world consumption of American cotton and outside growths, we may examine the changes which have occurred in the last ten years in cotton consumption on the world market.

This table shows firstly that during the years 1930-31 and 1931-32 total world cotton consumption declined considerably and that world consumption in 1930-31 represented 87.88 per cent., and in 1931-32 90.05 per cent. of consumption in 1927-28. In the succeeding years an increase of surprising rapidity may be observed, as if the world wanted to make up in cotton consumption as quickly as possible for its neglect during the crisis. In the last two years 1935-36 and 1936-37 (provisional figures) world cotton consumption reached an even larger figure than in the period of prosperity, reaching in fact 109.13 and 121.61 per cent. respectively of the volume in 1927-28, with the difference

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(1) AGRICULTURE'S INTEREST IN AMERICA'S WORLD TRADE, Agricultural Adjustment Administration, Department of Agriculture, Washington, 1935, pp. 10-11.

(2) HENRY A. WALLACE. The World Cotton Drama. In *Foreign Affairs*. Vol. 13, July 1935, No. 4, p. 554.

TABLE XI. — *World Consumption of American Cotton and Outside Cotton Growths 1927-28—1936-37. (Bales of 478 lbs.).*

	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
American cotton (1000 bales) . .	15,576	15,226	13,021	11,113	12,528	14,385	13,780	11,206	12,539	13,100
As percentage of world total . .	*61*	*60*	*52.45*	*49.77*	*54.75*	*58.36*	*53.67*	*44.07*	*45*	*42.39*
Outside growths (1000 bales) . .	9,832	10,577	11,805	11,216	10,353	10,265	11,897	14,119	15,190	17,800
As percentage of world total . .	*39*	*40*	*47.55*	*50.23*	*45.25*	*41.64*	*46.33*	*55.93*	*55.00*	*57.61*
Total (1000 bales)	25,408	25,803	24,826	22,329	22,881	24,650	25,677	25,325	27,729	30,900
As percentage of total 1927-28 . .	*100*	*101.55*	*97.71*	*87.88*	*90.05*	*97.02*	*101.06*	*99.67*	*109.13*	*121.61*

however that whereas before the crisis the largest proportion of cotton, often more than 60 per cent., had been bought in the United States and subsequently manufactured, now a larger proportion of Indian, Egyptian, Brazilian, Argentine cotton, etc., is used. And this, in spite of the fact that for more than a century the European cotton industry has been organised for the purchase and consumption of American cotton—on both the technical and economic sides—and that the American cotton trade has been and is assisted in our days by the American commercial system and its excellent organisation. But the explanation of this apparently strange phenomenon lies, we may repeat, in the traditional commercial policy of the United States which does not suit its now predominant position in the world economy or its great importance on the world credit market.

If we study in detail the consumption of cotton in the various countries and continents, as in Table XII, we are at once struck by the fact that consumption in 1935-36 in the United States was still below the level reached before the crisis That is due partly to the N. R A. and the processing tax on cotton used in United States mills. From 1 January 1933 until 2 February 1936 this tax of 4.2 cents per lb. on raw cotton, as it emerges from the bale, equivalent to 4 5 cents for pure cotton, was calculated in the price of cotton. According to Mr. Alston H. Garside (1), the manufacture and sale of a standard print cloth cost on the average 14 cents per lb. over the price of cotton. Now there were added the tax of 4.5 cents and a little more than 8 cents for the increase in wages and reductions in working hours, under the provision of N. R. A.—in consequence 12.5 cents, raising the total to almost double what it was before, without counting the fact that cotton too had become more expensive.

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(1) GARSIDE, ALSTON H Cotton Year Book of the New York Cotton Exchange, 1935, p 5

TABLE XII. — *World Cotton Consumption and the Share of American therein, by Countries and Continents*
(thousands of bales of 478 lbs)

Pays	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36
United States	6 834	7 091	6 106	5 263	4 866	6 137	5 700	5 361	6 351
Great Britain	3 097	3 074	2 587	2 019	2 576	2,392	2 659	2 616	2 821
	1 942	1 936	1 390	914	1,323	1 365	1,403	941	1 295
%	*62 71*	*62 98*	*53 73*	*46 75*	*51 36*	*57 06*	*52 76*	*35 97*	*45 91*
U S S R	1,711	1 681	1 770	1 720	1 813	1 838	1 965	1 975	2 351
	506	389	290	80			80	36	89
%	*29 57*	*23 14*	*16 38*	*4 65*			*4 07*	*1 82*	*3 78*
France	1 221	1 250	1,220	1 080	941	1 154	1,182	1,028	1 270
	851	820	746	738	599	808	781	535	660
%	*69 70*	*65 60*	*61 15*	*43 93*	*63 66*	*70 02*	*66 07*	*52 04*	*51 97*
Germany	1 618	1 376	1 352	1 120	1 260	1 282	1 597	944	1 143
	1,310	1 020	947	746	906	973	1 099	376	390
%	*80 96*	*74 13*	*70 04*	*66 68*	*71 90*	*75 90*	*68 82*	*39 83*	*34 12*
Italy	968	1,036	1 010	796	822	902	905	806	628
	725	741	681	495	587	714	663	460	425
%	*74 90*	*71 52*	*67 42*	*62 18*	*71 41*	*79 16*	*73 26*	*57 07*	*67 68*
Czechoslovakia	559	493	461	405	362	303	312	291	407
	445	375	329	284	279	247	227	180	242
%	*79 61*	*76 06*	*70 90*	*70 12*	*77 07*	*81 52*	*72 76*	*61 85*	*59 46*
Belgium	408	430	445	342	292	297	269	338	411
	221	217	184	141	152	172	155	122	150
%	*54 17*	*50 46*	*41 35*	*41 23*	*52 05*	*57 91*	*57 62*	*36 09*	*36 50*
Spain	422	404	424	416	431	413	443	432	368
	322	289	259	242	299	308	314	248	200
%	*76 30*	*71 53*	*61 08*	*58 17*	*69 37*	*74 57*	*70 88*	*57 41*	*54 35*
Poland	370	254	232	231	206	274	296	283	304
	327	208	189	183	174	240	237	204	217
%	*88 38*	*81 89*	*81 47*	*79 22*	*84 46*	*87 59*	*80 07*	*72 08*	*71 38*
Holland	181	185	204	197	155	158	176	188	234
	151	151	156	148	128	133	130	79	81
%	*83 42*	*81 62*	*76 47*	*75 13*	*82 58*	*84 18*	*73 86*	*42 02*	*34 61*
Total Continent	8 181	7 881	7 884	7 060	6 968	7,342	8 107	7,195	8 177
	5 353	4 707	4 227	3 440	3 556	4 079	4 230	2,739	2 963
%	*65 47*	*59 73*	*53 61*	*48 72*	*51 03*	*55 56*	*52 76*	*38 07*	*36 24*
Japan	2,578	2,797	2 875	2,482	2 729	2 934	3 289	3 622	3 554
	1 078	1,198	1 095	962	1 623	1 847	1 857	1,737	1 655
%	*41 81*	*42 83*	*38 09*	*38 76*	*59 47*	*62 95*	*56 46*	*47 96*	*46 57*
China	1,988	1,982	2,270	2 334	2,228	2 575	2 404	2,495	2 392
	268	403	292	362	883	748	423	256	104
%	*13 48*	*15 34*	*12 86*	*15 50*	*39 63*	*29 02*	*17 59*	*10 26*	*4 34*
India	1 664	1,637	2,063	2,044	2 287	2 249	2,137	2,464	2,477
Total Orient	6,358	6,643	7,432	7 103	7 494	7 908	8,135	8,957	8 786
	1,497	1 535	1 397	1,384	2,696	2,701	2,321	2,032	1 793
%	*23 55*	*23 11*	*18 80*	*19 48*	*35 98*	*34 15*	*28 53*	*22 68*	*20 41*
Total Various	972	1,089	866	982	977	871	1,166	1,299	1,594
	249	270	204	204	209	236	273	253	267
%	*25 62*	*24 79*	*23 56*	*20 77*	*21 39*	*27 09*	*23 41*	*19 48*	*16 75*
Total World	25,442	25,778	24 875	22,427	22,881	24,650	25,677	25,428	27,729
	15,576	15 226	13,021	11,056	12,528	14,385	13,780	11,206	12,539
%	*61 22*	*59 07*	*52 35*	*49 30*	*54 75*	*58 36*	*53 67*	*44 07*	*45 22*

For each country the first line indicates the total consumption of cotton, the second the consumption of American cotton and the third the consumption of American cotton as a percentage of the total

But the rendering of cotton thus expensive diminished its industrial consumption, for the margin between the price of cotton goods and of cotton shrunk too far. Thus the price of middling spot cotton developed as follows on the ten southern markets of the United States.

Price of Cotton (in cents per lb.)

Year	Excluding processing tax	Including processing tax
1933-34	10.81	15.01 (+ 4.2)
1934-35	12.36	16.56 (+ 4.2)
1935 - August	11.37	15.57 (+ 4.2)

The margin equalled 21.23 cents per lb. for 4 yarns on 4 August 1933 (1) and fell down to 7.70 cents by 5 July 1935. That was hardly the best means of stimulating the expansion of the industrial consumption of American cotton in the United States, it acted indeed rather as a direct obstacle to such consumption.

Examining now, on the basis of Table XII, the percentage of the cotton consumption of the various countries represented by American cotton, we come across the same phenomenon. Everywhere there is a downward movement, both absolute and relative, in the consumption of American cotton, especially up to 1934-35, the last year in which the Agricultural Adjustment Act was fully effective. In 1935-36 an increase in the consumption of American cotton was observable in the world in general and particularly in France, Czechoslovakia, Poland and the Netherlands. Similarly an increase took place in the United States itself. But though in 1935-36 the consumption of cotton from all sources had already attained in Europe the level of 1927-28—8,177,000 compared with 8,181,000 bales—the figure for American cotton consumption in European countries was hardly half as large as in 1927-28—2,963,000 as against 5,353,000 bales, or 36.24 and 65.47 per cent. respectively, of the total European cotton consumption in those years.

The situation in Asia, and particularly in Japan, is somewhat different. In 1927-28 Japan consumed 2,578,000 bales of cotton from all sources, representing 10.15 per cent. of the total world consumption. Consumption then increased almost uninterruptedly, reaching 3,622,000 in 1934-35--representing 14.24 per cent. of the world total, falling however thereafter to 3,554,000 bales, or 12.8 per cent., in 1936-36. The industrialisation of Japan which had already been favourably influenced by the Great War and which had caused an increase in the consumption of domestic as well as of imported cotton was further stimulated by the world crisis—however paradoxical that may seem at first sight. The cotton industry is the greatest Japanese industry and since some years it has become the largest in the world after that of the United States.

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(1) COTTON YEAR BOOK, 1935, p. 209.

Thus in recent times world cotton supply and demand have not only been spatially extended but also transformed. The cotton market has assumed rather a piecemeal structure and has lost much of the clearness of line which it had before the war, and has become much more complicated.

If exception is made of the International Federation of Master Cotton Spinners and Manufacturers' Associations (Manchester) which brings together the spinners and weavers of the whole world outside the United States, there does not yet exist an organisation in the world cotton market of the type of the " International Cotton Institute " proposed in the *Cotton Trade Journal*, " an organisation, actively furthering the world's farflung cotton industry, devoted primarily to cotton in all the phases, from growers of the raw material to the ultimate consumer " (1).

Another proposal of this kind, aiming at bringing the world's producers of cotton and the textile industries together for economic collaboration, was made at the International Textile Conference held at Washington on 2 April 1937, where the Indian delegate raised the question of the desirability of creating an international cotton committee in order to be able to regulate both the supply and prices of cotton in the world market.

Even though the world economic structure is not " planned " throughout it is (including the cotton market) pervaded by a spirit of economic recovery and its pulse beats faster. Most probably this is due to the rise and the fall of the economic barometer which occurs regularly and periodically, the present rise following a period of decline, in part however it has been favoured by the re-armament boom throughout the world. It is significant that in opening the discussions of the Committee for the study of the problem of raw materials to which reference has already been made in the introduction, the Secretary General of the League of Nations pointed out that the present growing importance of raw materials is probably related to " the check to the Disarmament Conference and the consequences of that check "

10. — THE CONSUMPTION OF ARTIFICIAL FIBRES.

By reducing—as we have shown above—the industrial consumption of cotton in the United States the processing tax contributed indirectly at the same time to bringing about an increase in the consumption of other textile fibres such as silk, wool, rayon, flax, sisal and others not subjected to taxes of that kind.

The evolution of the consumption of the four most important textile fibres — cotton, wool, silk and rayon in the United States — from 1920 to 1936 inclusive, may be seen from Table XIII.

It may first be noted that the total consumption of the four textile fibres had increased from 3,180.3 million lbs. in 1920 to 4,135.6 million in 1927. Thereafter it in general declined, reaching the lowest level in 1932, at 2,919.6 million lbs. From 1933 to 1936 consumption increased considerably, reaching 4,233.4 million lbs. in the latter year. The lion's share went naturally to the king

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(1) The *Cotton Trade Journal*, International Edition, New Orleans, 1937, pp. 13-15.

TABLE XIII. — *Annual Fibre Consumption in the United States.*
(in millions of pounds and percentages).

Year		Cotton	Wool	Silk	Rayon	Total
1920		2,828.1	314.2	29.3	8.7	3,180.3
	%	*88.9*	*9.9*	*0.9*	*0.3*	*100*
1925		3,074.7	349.9	66.0	58.3	3,548.9
	%	*86.6*	*9.9*	*1.9*	*1.6*	*100*
1926		3,214.8	342.7	65.9	60.6	3,684.0
	%	*87.3*	*9.3*	*1.8*	*1.6*	*100*
1927		3,609.5	454.1	72.0	100.0	4,135.6
	%	*83.3*	*8.6*	*1.7*	*2.4*	*100*
1928		3,184.8	333.2	74.9	100.5	3,693.4
	%	*86.3*	*9.0*	*2.0*	*2.7*	*100*
1929		3,422.7	368.1	81.3	133.4	4,005.5
	%	*85.5*	*9.2*	*2.0*	*3.3*	*100*
1930		2,610.9	263.2	76.0	118.8	3,068.9
	%	*85.0*	*8.6*	*2.5*	*3.9*	*100*
1931		2,656.6	311.0	77.3	158.9	3,203.8
	%	*83.0*	*9.7*	*2.4*	*4.9*	*100*
1932		2,463.3	230.1	70.9	155.3	2,919.6
	%	*84.5*	*7.8*	*2.4*	*5.3*	*100*
1933		3,052.5	317.1	59.8	217.3	3,646.7
	%	*83.8*	*8.7*	*1.6*	*5.9*	*100*
1934		2,655.4	229.7	58.5	197.2	3,140.8
	%	*84.5*	*7.3*	*1.9*	*6.3*	*100*
1935		2,754.8	402.5	62.4	259.3	3,479.0
	%	*79.2*	*11.6*	*1.8*	*7.4*	*100*
1936		3,468.0	384.5	57.9	323.0	4,233.4
	%	*81.9*	*9.1*	*1.4*	*7.6*	*100*

of the textile materials, cotton, the consumption of which, in absolute figures, increased quite appreciably from 2,828.1 million lbs in 1920 to 3,468 million in 1936. But the relative share of cotton in the total consumption of the textile materials declined considerably, from nearly 89 per cent. in 1920 to almost 79 per cent. in 1935, a loss thus of 10 per cent. in the total. In consequence of the trends in the general economic situation, and in part also of the abolition of the processing tax, cotton consumption increased in 1936 to 82 per cent. of the total consumption. Compared with 1920 however the share of cotton represented 7 per cent. less of the total consumption of the textile fibres.

The percentage of wool in the total consumption of fibres in the United States—the country whose consumption of wool is largest and whose production is second to that of Australia—shows a slight downward tendency, from 9.9 per cent. in 1920 to 9,1 per cent. in 1936. It was at the highest in 1922, at 12 per cent. and lowest in 1934 with 7.3 per cent.

Silk consumption, which represented 0.9 per cent. in 1920, increased to 2.5 per cent. in 1930, to fall with fluctuations in the following years, reaching 1.4 per cent. in 1936, a figure which represents however an increase of 0.5 per cent. in the total, compared with 1929. The United States consumes in general 70 per cent. of the world silk production, and imports from Japan—the largest silk producing country—alone about 75 per cent. of that country's production.

The only one of these fibres to gain substantially was rayon, a late arrival in the textile industry. In 1920 the percentage of rayon in the total fibre consumption was the lowest of all the other fibres—0.3 per cent. In 1927 the share already exceeded, at 2.4 per cent., that of silk, the consumption of which had also meanwhile increased though only arriving at 1.7 per cent. in that year. In 1930 the percentage of silk reached its maximum at 2.5 per cent., falling, as we have noted, thereafter, whereas the percentage share of rayon continued to rise without interruption to reach the highest point in 1936, at 7.6 per cent. Thus from 1920 to 1936 the share of rayon increased by 7.3 per cent. of the total, an increase exceeding the decrease of the share of cotton. Rayon, which competes with wool and silk as well as with long-staple cotton and affords vast sections of the population a luxury article has thus made enormous progress, especially when it is considered that in 1911 its production in the United States was only 364,000 lbs.

The consumption of synthetic fibre was developed considerably, not only in the United States but also particularly in the countries which are poor in raw materials, especially in Italy, Germany, Japan, etc.

According to the annual report of the *Snia Viscosa* (*Società Nazionale Industrie Applicazione Viscosa*), which has its headquarters in Turin, the quantity of artificial silk yarn (rayon in continuous filament) produced in Italy in 1936 equalled 40 million kilogrammes, and of rayon staple fibre 50 million kilogrammes. Beyond this the first successes have been registered in the production of wool from casein (lanital).

Imports of wool amount to between 40 and 50 million kilogrammes annually with a value of between 600 and 700 million lire. The wool industry at present only consumes 4-5 million kilogrammes of synthetic fibre, thereby one third of the raw material of the cotton industry and about one tenth of that of the wool industry being provided. But these proportions can be appreciably increased. During the last six years the total production of synthetic fibres has increased three-fold. In 1936 the value thereof reached 750 million lire, representing about 10 per cent. of all Italian imports (1).

It is well known that in Germany during the war as result of the raw material scarcity, synthetic fibre was invented and given the name " Stapelfaser " (staple fibre). But after the war it quickly went out of manufacture for it had important defects. In 1922 under the name " Vistra " another similar synthetic fibre was manufactured which for strength and fineness was much superior to the earlier " Stapelfaser. " [Today it is often given the name of " Zellwolle, " and is manufactured from cellulose. According to Dr. van Delden (2) it should be possible to replace, by this fibre, 25 per cent. of cotton imports in 1936, 35-40 per cent. in 1937, whilst he predicted the replacement of the whole of cotton imports by 1940. The same author however added " But it has been stated that Germany would scrap the whole work and forget all about it if she could get American cotton by barter. " But the present day economic programme is to make " Zellwolle " the raw material *par excellence* for the national textile industry.

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(1) MARINETTI FRANCO: L'industria italiana delle fibre tessili artificiali e il suo contributo all'indipendenza economica della Nazione. Milano, 1936, p. 9.

(2) DELDEN, Dr. van. Wood Supplants Cotton. *Cotton Trade Journal*, 1937, pp. 91 and 238.

World rayon production has risen from 200,000,000 kg. in 1930 to 450,000,000 in 1936 and that of " Zellwolle " or rayon staple from 350,000 to 121,000,000 kg., so that the production of artificial fibres has increased from 200,350,000 to 571,000,000 kg., of which Italian and German production represent about 70 per cent. (1).

In Japan the production of rayon in 1936 equalled 276,000,000 lbs, exceeding that of 1935 by 26 per cent. The production of rayon now exceeds that of the United States. Exports also have grown. In 1936 Japan exported rayon cloth to a value of 113,484,000 yen, mostly to British India. At present experiments are being made to obtain a new textile fibre " Sugano " which grows in Japanese waters.

In many other countries also, as, for example, England, where rayon production reached 12,800,000 kg. in 1936, in France, Poland, Romania, Yugoslavia, Hungary, Argentina, etc., production of the artificial textile materials is increasing more and more. The upward tendency in the consumption of artificial fibres and its influence on the situation of cotton in the world textile economics is amusingly described by Mr. J. E. Edmonds (2) in the following terms: " Once-upon-a-time, ' King Cotton' lived in the American Cotton South. He was an American citizen. The ' King could do no wrong ' and his ministers, the American cotton producers, dominating world markets and furnishing the greater part of what the world consumed, thought they couldn't do anything wrong either He was a *Producer*, if you understand what I mean. Times have changed.

" King Cotton is a *Consumer* now, a personification of the combined power of hundreds of millions of cotton-users, in all the continents, making their will felt through the spinners of *Britain, Japan, Central Europe* and the rest. A King who, annoyed, has turned to *synthetic fibres* for clothing equivalent to the use of two million bales of cotton in one year. "

Whither this way leads and in what degree the traditional textile materials, particularly cotton, will be replaced by synthetic fibres are questions which cannot yet be answered definitely. But the general direction in view of the tendency throughout the world towards economic autarchy is towards an increase in the production and consumption of the artificial fibres At bottom it is a question of technique, of the perfectioning of the production process of these fibres, which goes together with the economic question, that of reducing production costs; both these problems are problems of which the solution is favoured by the economic difficulties of the time. Shall we see in this field the same developments as in the cases of synthetic nitrates or artificial rubber ? That prospect may still seem perhaps rather remote but from now on any rational economic policy for cotton must reckon with these future possibilities and appreciate them sufficiently in advance at their true worth.

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(1) *Berliner Tageblatt.* 8 May 1937.

(2) EDMONDS J. E. American cotton—soil to spinner. *Cotton Trade Journal,* International Edition, 1937, p. 16.

II. — THE SOIL CONSERVATION AND DOMESTIC ALLOTMENT ACT.

The changes which occurred in the agricultural and cotton policy of the United States with the abolition, in January 1936, of the Agricultural Adjustment Act was of great importance for the world cotton market. *The Soil Conservation and Domestic Allotment Act* which in part took its place coincided in publication with an upward movement in the American and world cotton markets. This law aims at replacing the palliative measures, which had been adopted during the crisis for the valorisation of the agricultural land, by radical measures designed to protect the soil itself—the most important national property—from natural wastage and destruction.

The fundamental idea of the new agrarian legislation is the conservation of agricultural land and its fertility. So long as the cultivable area of land in the United States could always be extended the Americans, sure of the unlimited expanse of the Union territories, did not give much attention to erosion and the slow loss of soil fertility, for new fields could always be put under cultivation without worrying about exhausted fields. Forest areas have also been at the same time deforested by the timber industry without provision being made for a rational reafforestation, with the result that of the original forests of the Union only one tenth remains. Deforested areas however are specially prone to devastation by erosion, whether through weathering or by surface runoff.

On the other hand, the exaggerated single crop farming, whether of cereals, cotton or other products, causes excessive exhaustion in various regions of the resources and fertility of the soil. As a result of erosion and single crop farming about one half of the original fertility of the American soil has been lost. This problem had already made itself felt after the Civil War but it is only since the great wastage from erosion and the great dust storms of 1936, which caused thousands of millions of dollars damage, that the problem assumed a nation-wide character.

In the North of the United States where livestock rearing predominates, the situation is better, whereas in the cereal and cotton belts it is definitely worse. It is calculated that of the 1,000,000,000 acres of cultivable land in the United States, 300,000,000 or 30 per cent. have already been seriously damaged by erosion. It is this situation which the new law seeks to remedy, the new plan aiming above all to (1) conserve soil resources, (2) protect rivers and harvests against the results of soil erosion in aid of maintaining navigability and in aid of flood control, and (3) re-establish and maintain the pre-war ratio between the per capita purchasing power of farm and non farm income.

The Soil Conservation Act thus, like the old Agricultural Adjustment Act, aims at the control of agricultural production through the partial transference from commercial crops, such as cotton, wheat, tabacco, etc., to non commercial crops—grasses, vegetables, etc., which maintain soil fertility. But the ultimate purpose which it is proposed to achieve differs somewhat from that of the Agricultural Adjustment Act; in the latter the principal aim was the control of production in order to re-attain the pre-war parity of prices, whilst the improvement of the soil was only a secondary aim. In the new Act the improvement of the soil has become the most important question for the whole nation, though agricultural prices have not been left out of sight.

The transference of land to soil conservation crops is not compulsory and farmers who do it voluntarily are compensated. For cotton the indemnity is fixed at 10 dollars per acre calculated on the basis of average yields of 185 lbs. of cotton per acre withdrawn from cotton production. 500 million dollars annually is the sum fixed for the financing of this programme. The relation between the expenditure for this financing and the national income is described officially as follows: " The half billion dollars expected to be appropriated annually under the Soil Conservation and Domestic Allotment Act of 1936 is the equivalent of one-half to 1 per cent. of the national income for a single year, which ranges from 50 billions in depression to 100 billions in prosperity. It is equivalent, moreover, to 5 per cent. of the value of the 200 million acres of eroding land, assuming that such land has an average value of $50 per acre. And it is at least doubtful that the value is this great. " (1)

The conservation of the soil however is not only a technical agricultural problem, but also an eminent question of the social economics of American agriculture, especially in regard to the land tenure system. The system, so wide spread in the United States, of tenancy, for a period often lasting only one year and under which the holding may change hands each year, is a factor which tends to deteriorate seriously the quality of the land. The farmer naturally is interested in obtaining the largest return possible in the short period of the lease without worrying about the condition of the soil when he leaves the farm at the termination of the contract. Between 1880 and 1930 the percentage of tenancy farms increased from 25.6 to 42.4 of all American farms. Only in the agricultural census of 1935 did a slight decline, to 42.1 per cent. appear. In 1935, 34.2 per cent. of all farmers worked their farms for less than 1 year, 13.1 per cent. held a tenancy lease for one year only, 24.1 per cent. for two to four years, 14.7 per cent. from six to nine years, 6.8 per cent. from six to fourteen years and, finally, 7.1 per cent. had held their farms for more than fifteen years. Under this system the farmer becomes a kind of nomad.

In general the farmer receives no compensation for any improvements he may introduce on the farm, consequently it is only too easily seen that the land serves a speculative purpose and that it is not well cared for. It is interesting to note thereon the recently expressed opinion of the Secretary of State for Agriculture, Henry A. Wallace: " Throughout our history we have tried to help our people settle and stay settled on the land. Public land has not only been sold at nominal prices, it has been given away, millions and millions of acres of it.

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(1) SOIL CONSERVATION, ITS PLACE IN NATIONAL AGRICULTURAL POLICY. United States Department of Agriculture, A. A. A., Washington, D. C. 1936.

And still tenancy has increased, farming by owners has decreased, and the debt burden has mounted. If gifts of land did not seem to check tenancy and promote ownership by operators, can we be any more confident that the sale of land, even at extremely favourable terms, will be an adequate answer to our problem ?... The problem is of such magnitude that many other approaches besides mere purchase and sale must be found, if any appreciable improvement in the situation is to result. " And after having described the measures to be taken for the purchase of cultivated lands in the region of the great plains in nine States in order that these lands might be transformed into pasture lands, which will prevent soil-erosion, he concluded with the following significant words: " Agriculture is no longer the forgotten industry in the United States. "

And, in consequence, this is the case too in the cotton economy of the United States, the importance of which is indicated by the fact that of the cotton produced more than 65 per cent. was exported before the war, representing 20 per cent. of the total value of United States exports.

12. — THE NEW TRADE AGREEMENTS OF THE UNITED STATES.

Under the influence of the shrinkage in foreign markets the old trade policy of the United States marked by the high tariffs of 1920, 1922 and 1930 has recently been replaced by a somewhat more liberal policy. In the last two or three years commercial treaties, containing the most favoured nation clause, have been concluded with a whole series of countries, on the basis of the *Trade Reprocity Act* of 13 June 1934, by which the President of the Republic is authorised to reduce customs tariffs up to 50 per cent. in the conclusion of trade treaties. In February 1937 the Congress granted the President full powers for the making of similar treaties for a further period of three years. Commercial treaties with lowered tariffs have been made with, *inter alia*, Cuba, Brazil, Haiti, Colombia, Canada, Honduras, Nicaragua, Belgium, Sweden, Holland, Switzerland, France and Finland (1).

The most important market for the United States is now the United Kingdom to which 16.2 per cent. of all American exports went in 1929, and 19 per cent. in 1935. It is also the most important market for American cotton exports after Japan. Consequently it is to be understood that negotiations are being carried out with the United Kingdom and other countries for commercial treaties similar to those which the United States have already made. The Imperial Economic Conference held in London in May 1937 has also concerned itself with the question of commercial treaties with the United States.

When the authorisation was granted in 1937 to the President of the United States to conclude commercial treaties until 1940, President Roosevelt said, among other things, the following: " The economic welfare engendered by excessively high and discriminatory trade barriers was one of the main sources of political animosity and military conflict. At the present time, in view of the lamentable state of world affairs, the United States could not in all fairness relax their efforts or relinquish their leadership of the world movement for a lasting peace through economic prosperity. "

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(1) *Governmental Measures affecting Agricultural Prices* International Institute of Agriculture. No 5, 1936, p. 14.

This new era of the commercial policy of the United States—the exports of which country represented in volume 16.2 per cent. of the world total in 1929 and 11.7 per cent. in 1936—is of great importance. It is of interest to note that whereas America's percentage of world exports declined from 12.72 per cent. in 1932 to 11.7 per cent. in 1936, or 1.02 per cent. in the world export total, at the same time her percentage of world imports rose from 9.92 to 11.24 per cent. an increase, that is, of 1.32 per cent., in the world import total. In absolute figures exports from the United States declined from 1,576 million dollars in 1932 to 1,427 million dollars in 1936 whilst imports at the same time increased from 1,352 millions to 1,430 millions. These figures thus express the characteristic fact that in American commercial policy a greater importance is being attached to imports.

CONCLUSION.

From the analysis of the present trends of the world cotton market and an examination of all the vagaries of the world cotton trade, the general notion which emerges is firstly that of the manifest instability which characterises contemporary economic life. From the low production crisis of the immediate post-war years the world soon passed to the crisis of markets and the collapse of prices through over-production. This period was then followed by years of prosperity (1926-29) which in their turn were followed by an economic crisis such as the world had never before known.

The crisis which raged since 1929 shook the whole structure of the world cotton market to such a degree that, at the worst point of the crisis, in 1932, not only was the volume of world cotton trade much smaller but also the relative productive capacities of the different cotton growing countries had been radically changed whilst the activity of the cotton industry was diminished.

From the end of 1932 however a recovery in cotton transactions was to be noted, at first rather slow but which by the end of 1936 had become quite appreciable; consumption increases, trade is visibly more lively, etc., to such a point as to awake the fear that, given the alternation of crisis and prosperity years, these are the signs of a real economic " boom, " though prices, which had been rising until April 1937, have since shown a declining movement.

In front of this eternal flux and reflux of the economic tide, with its disturbing social effects, man's action seems so far to have been limited. Can the remedy of this situation, to obtain the normal action of economic life and a constantly progressive development, be found in " planned economy " ? However it may be, all attempts which have been made to soften the painful consequences of the crisis, especially if they have been made in a country such as the United States, whose commercial transactions are of the greatest importance in world trade, are always full of instructive lessons for international economic policy and offer valuable support for the social peace of the world.

In this regard we may note the deeply significant statement made by Mr. W. L. Clayton (1). " America's stake in world trade is, however, even greater than the recapture of lost markets and the developments of new ones, as compelling as that is. This greater stake lies in America's opportunity and responsiblity in the promotion of world peace.

" World peace and how to preserve it is the biggest question in the world to-day. And this question cannot possibly be dis-associated from the problem of world trade and how to restore it. "

The new commercial and tariff policy adopted by the United States since 1934 as well as the transformation in the agricultural programme made in 1936, both of which tend slowly to break down the economic isolation of the United States, also contribute indirectly to a better understanding and to the strengthenting of the cultural bonds between the people. These two factors represent the indispensable conditions for the widening of world economic intercourse and thereby the further development of the international cotton market.

M. TCHERKINSKY.

LIVE STOCK INSURANCE IN GERMANY

SUMMARY *Private insurance against live stock mortality* Origin and development of this type of insurance Insurance contracts Supervision of insurance societies Legislation for prevention and elimination of contagious diseases *Private insurance of slaughter stock*

PRIVATE INSURANCE AGAINST LIVE STOCK MORTALITY.

In 1935 this type of insurance was operated in Germany by 13 large private societies (2) and some 9,000 small local societies (3).

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(1) AMERICA CAN LEAD WAY TO ECONOMIC PEACE *Cotton Trade Journal*, International Edition, 1937, p 157.

(2) Share companies:

Badische Pferdeversicherungs Anstalt A G, Carlsruhe

Mutual insurance societies:

Altenburger Vieh Versicherungs Gesellschaft, Altenburg – *Deutscher Bauerndienst, Tierversicherungs Gesellschaft*, Berlin – *Braunschweigische Allgemeine Vieh-Versicherungs-Gesellschaft*, Brunswick – *Vieh-Versicherungs- Gesellschaft*, Bremen – *Vaterländische Vieh Versicherungs- Gesellschaft*, Dresden – *Erfurter Vieh Versicherungs-Verein*, Erfurt – *Zentral-Vieh-Versicherungs-Verein*, Hildesheim – *Pfälzischer Vieh-Versicherungs-Verein*, Ludwigshafen – *Stuttgarter Pferde und Vieh Versicherungs-Gesellschaft*, Stuttgart – *Trierischer Vieh-Versicherungs-Verein*, Trèves – *Uelzener Vieh-Versicherungs-Verein*, Uelzen – *Prignitzer Vieh-Versicherungs Gesellschaft*, Wittenberg

The foregoing are included in the list given in the Report of the Office of the Reich for Supervision of Private Insurance In the list published by Neumann's *Jahrbuch der privaten und öffentlichen Versicherung im Deutschen Reich* for 1935 there are included also 4 societies which are not subject to the supervision of the Reich Office:

the *Markische Vieh-Versicherungs-Gesellschaft* at Berlin;

the *Ostdeutsche Pferde und Vieh-Versicherungs-Gesellschaft* at Frankfurt on Oder (both of these confining operations to Prussia);

the *Bayerische Versicherungs-Bank*, a share company with headquarters at Munich, and

the *Vieh-Versicherungs-Verband der Landesbauernschaft Rheinland* with headquarters at Cologne; these two institutions operate live stock reinsurance

(3) BEINZGER W. Die Tierlebensversicherung durch kleinere Vereine. 1936, p. 19.

Origin and Development of this Type of Insurance. — It is generally believed that live stock insurance was introduced into Germany in 1765 by Frederick the Great who endowed the farmers of Silesia with an institution established on a State basis the object of which was the compensation of losses due to cattle plague. It appears however that as early as 1720 insurance contracts existed, as is shown by a policy issued at that time in Hamburg according to which a number of insurers took upon themselves the risk arising from death, disease, theft and other contingencies affecting the animals.

The small local insurance associations are of fairly ancient origin. At first their organisation was rudimentary. Usually there were no rules or terms of constitution and the losses due to the compulsory slaughter of the animals were partially compensated by the distribution of the utilisable meat among the members of the society in accordance with certain regulations. At the end of the XVIIIth and the beginning ot the XIXth century several small local societies were founded which replaced these associations: these societies gave compensation no longer in kind but in cash contributed by the members in proportion to their incomes or to the size of their farms. By degrees regulations were made on the scale of compensation payments as well as on the distribution of the dues paid by members, and the societies began to draw up rules. With the progress of co-operation and with the building up of capital in the rural communes, the organisation of these local societies progressed farther they began to fix the contribution in advance and to form reserves constituted by surplus funds for use in the case of extraordinary losses. These societies, which were designated variously (*Viehgilden, Kuhladen,* etc.), sprang up first in Schleswig-Holstein and soon spread all over North-western Germany and into Southern Germany where there were a large number of farms engaged in stock farming. On the other hand this type of insurance did not develop to the same extent in Eastern Germany where there was a predominance of large farms.

The activity of these societies was confined to the territory of a single commune, or at most to several neighbouring communes. Insurance was usually limited to cattle and pigs; for a large number of farmers there was no possibility of covering risks arising from loss of other animals. The need for these additional insurances was met by the formation of larger organisations with a more extended range of action alike from the standpoint of area of operation and from that of the kinds of stock insured.

The first institution of this type was formed in 1833, under the designation of *Viehversicherungsanstalt für Deutschland,* by Herr Masius of Leipzig. This society, founded on the co-operative or mutuality principle, extended operations throughout Germany insuring not only cattle but also horses. Compensation was limited for horses to two-thirds of the value, while full compensation was paid in the case of cattle. As however the premiums proved invariably to be inadequate in view of the very severe losses occasioned by contagious diseases, it was necessary to have recourse in the first instance to supplementary contributions and later to reduce the compensation payments. In consequence the capital insured diminished to such an extent that in 1839 the society was dissolved.

The same fate overtook after a brief existence other societies founded at the same time, the reason being especially their failure to estimate risks with precision and in consequence the call for large additional contributions.

It was only towards the middle of the XIXth century that the first societies were formed which proved capable of maintaining existence. These were the *Pfälzische Viehversicherungsverein* at Speyer formed in 1849 and the *Braunschweigische Viehversicherungsgesellschaft* at Brunswick founded in 1852. Their success was mainly due to the fact that from the beginning of their operations they kept their policyholders under continual supervision and that they were very careful in the acceptance of risks. Several societies which sprang up later and which did not follow this example had only a short span of life.

In any case the development of the large societies was very slow and at times it was almost completely arrested.

Assistance was given to the small local societies, in particular, by the governments of Southern Germany which attempted to develop the organisation of live stock insurance by improvement of the position of these small societies, either by means of State contributions or by the formation of public reinsurance institutions. Further detail will be given in respect of these institutions when dealing with this question, which has a great importance for this type of society.

At the end of the XIXth century, or more precisely in 1898, the numbers of animals insured by the large insurance societies were: 146,316 horses, 133,018 cattle and 96,800 pigs, or 3.06 per cent. of the existing horses, 0.72 of the cattle and 0.68 of the pigs.

The small live stock insurance societies, on the other hand, had in 1897 covered risks for 214,874 horses, 1,150,346 cattle, 1,005,055 pigs and 11,756 goats (figures not including Bavaria and Alsace-Lorraine). The percentages were thus 5.32 for horses, 6.26 for cattle and 6.24 for pigs.

In 1935 the Reich Office for Supervision of Private Insurance registered 15 large live stock insurance societies, two of which dealt exclusively with the insurance of slaughter stock. The 13 societies in question had insured against live stock mortality only 194,149 animals.

In the course of the same year there were in existence 8,792 local insurance societies which had insured against mortality 2,454,976 animals, including 339,854 horses, 1,585,569 cattle, 492,584 pigs and 36,969 goats (1).

Insurance Contracts. — The contracts or policies arranged by insurance societies are regulated in Germany by the Law of 30 May 1908 (2).

This law which deals with the whole sphere of private insurance, with the exception of marine insurance and of reinsurance, is divided into five sections.

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(1) Manes, A. Güterversicherung, Versicherungswesen. V. II, p. 148. — Beinzger, op. cit., p. 11-19. — Tratzscher A. V. Band: Landwirtschaftliche Versicherung; Hagel- und Viehversicherung, p. 96. — Statistik für 1935 über die unter Reichsaufsicht stehenden Versicherungsunternehmungen und Bausparkassen, Berlin and Leipzig 1936, p. 137.

(2) *Reichsgesetzblatt* of 5 June 1908. Entry into force of the Law of 1 January 1910.

The first section is devoted to the provisions applicable to all branches of insurance (general principles, compulsory declaration, heightening of risk, premiums, insurance agents). The second section deals with the insurance of losses (including general provisions relating to the content of the contract, the sale or alienation otherwise of the object insured, etc.), third party risks insurance, fire insurance, hail insurance, live stock insurance, transport risks insurance, and liability insurance. The third and fourth sections deal with life and accident insurance. Final provisions are contained in the fifth section.

Live stock insurance contracts are regulated not only by the general provisions contained in the law and especially by those relating to insurance of losses, but also by a special part of the law. These special provisions apply exclusively to insurance against live stock mortality in all its forms, but not to the insurance of slaughter cattle. For this form of insurance the general provisions of the law hold good as well as those relating to the insurance of losses in general.

Live stock insurance obliges the insurer to repair the loss occasioned by the death of the insured animal If the death is due to disease or accident, the amount of the loss is estimated at the value of the animal immediately before the occurrence of the disease or accident.

Insurance may also be effected against loss resulting from disease or accident, even when not followed by death.

The insurance does not cover (1) loss caused by a contagious or other disease, when the insured owner has a legal claim to compensation from the public budget, or when he would have had such a right if he had not lost it in consequence of infringement of the regulations relating to contagious diseases, (2) loss due to measures taken, in time of war or after the proclamation of a state of war, by a military official.

If, on account of a defect in the insured animal, the insured owner has a suit against a third party for payment of guarantee, this suit or claim passes to the insuring body to the extent to which this body repairs the loss caused. Such substitution of rights cannot be effected to the detriment of the policy-holder. If the exercise of the claim to the guarantee has become impossible from fault of the policy-holder, the insuring body is released from the obligation to repair the loss, to the extent to which such loss might have been covered by the claim to the guarantee.

After the occurrence of any insured risk, the insurer is not bound to repair the loss due to a subsequent event except up to the balance of the sum insured. For the further periods of insurance the insuring body can claim only a proportional part of the premium.

The insurer has the right to proceed at any time to the inspection and examination of the insured animals.

The insurer must be informed not only of the death but of any ailment or of any serious accident, affecting the insured animal. Even when the insurance is only taken out for the event of death, the provisions in force on the subject of the declaration of the insured event are applicable to the declaration of cases of disease or accident.

If the insured animal falls ill or is the victim of an accident, the insured owner must, unless the case is really unimportant, at once call in a veterinary surgeon, or, if this is not possible, an experienced person.

Board and lodging expenses, as well as those of the veterinary examination and treatment, do not form part of the expenses to be refunded by the insurer, within the terms of article 63 of the law in question. The cost of the first medical examination, in the case of disease of an insured animal, will be met, in equal shares, by the insurer and the insured owner.

The interest charges on the compensation, as well the claim by the insured owner to a payment on account, are regulated by art. 94 of the law in question.

Whenever the insured owner, either intentionally or by some grave error, seriously maltreats or neglects the animal, the insurer is released from the obligation to make the payment, unless the injury does not result from the bad treatment nor from the negligence. Omission to call in a veterinary surgeon or experienced person constitutes serious negligence.

The insured owner may not proceed to forced slaughter of the animal without the consent of the insurer, unless it has been impossible to wait for the opinion. If it is established by the report of the veterinary surgeon, or in the event of his presence being impossible, on the report of two experienced persons, given before the slaughter, that this was necessary, and if it was impossible to await the opinion of the insurer, the latter must yield to the accomplished fact. If—with the reserves as stated—the slaughter took place without the consent of the insurer, the latter is released from making the payment.

In a case where the obligations arising from the insurance come to an end on a date after the insured animal has fallen ill or has been the victim of an accident, such expiry of the contract does not affect the liability of the insurer, if the disease or accident result in the death of the animal within two weeks to be reckoned from such expiry.

In the case of sale of an insured animal, the insurance comes to an end in respect of that animal; the insurer has none the less a claim on the premium for the insurance period in course. If the death of the animal occurs in consequence of a concealed defect before the period of insurance in course or within two weeks of the sale, the insurer remains liable towards the policyholder, to the extent to which the latter is legally bound in respect of the guarantee towards the purchaser.

Supervision of the Insurance Societies. — The operations of the insurance societies are subject to the supervision of the governmental offices of inspection. The fundamental law of 12 May 1901 was amended several times and has finally been replaced by a new text which bears the date of 6 June 1931 and which has been amended several times, most recently by the Law of 5 May 1937.

This law is not applicable, *inter alia*, to societies operating exclusively reinsurance, with the exception of mutual insurance societies, and with reserve of decision in contrary sense by the Minister of National Economy, nor to public insurance institutions established on the basis of the laws of the individual States. These institutions are none the less required to submit to the Reich Office of Supervision certain reports on the course of their operations.

Large Insurance Companies or Societies Operating Insurance against Live Stock Mortality and Insurance of Slaughter Stock in 1935.

Society	Capital 1000 RM	Legal reserve 1000 RM	Premiums 1000 RM	Compensation payments 1000 RM	Insurance against live stock mortality		Insurance of slaughter stock	
					Number of insured animals	Sums insured 1000 RM	Number of insured animals	Sums insured 1000 RM
Share company:								
Badische Pferde Vers. Anstalt A. G.	500	75	1,715	1,126	30,495	22,798	41,592	9,906
Mutual insurance societies:								
Altenburger Vieh V. G.	—	237	645	660	15,924	12,438	—	—
Deutscher Bauerndients, Tierversicherung G	—	261	7,680	8,559	76,429	43,509	2,850,613	408,833
Braunschw. Allgemeine Vieh V G	—	155	223	196	5,302	3,248	7,205	977
Vieh V G.	—	6	5	1	144	88	—	—
Vaterländische Vieh V. G	—	235	682	647	12,420	8,690	11,126	2,383
Erfurter Vieh V. V	—	37	664	646	15,344	11,096	—	—
Zentral Vieh V. V.	—	68	641	372	12,877	9,237	75,212	14,039
Pfälzischer Vieh V V	—	47	488	332	10,869	8,010	—	—
Stuttgarter Pferde-u. Vieh V G	—	141	182	133	3,563	3,262	—	—
Trierischer Vieh V. B.	—	—	13	16	1,959	608	—	—
Uelzenener Vieh V. B	—	81	354	252	8,104	5,321	814	115
Prignitzer Vieh V. G	—	13	28	18	719	376	—	—
Other societies:								
Allg Deutsche Schlachtvieh V Anstalt (Gebr. Lange)	—	—	2	1	—	—	1,000	138
Hamburg-Altonaer Vieh V. G m. b. H.	60	60	278	317	—	—	440,094	69,320
Totals	560	1,416	13,600	13,276	194,149	128,681	3,427,656	505,711

Supervision of insurance societies confining their operations to a particular State is exercised by the inspection authorities of that State. Otherwise, the supervision is exercised by the Office of the Reich for Supervision of Private Insurance (*Reichsaufsichtsamt für Privatversicherung*).

This office exercises supervision also over insurance societies the activity of which is limited to a particular State, if so desired by that State and if the Minister of National Economy so provides. The amending law of 1937 prescribes that the Minister may arrange that the authorities of the particular State shall co-operate in the supervision and may regulate the procedure of the supervising authorities somewhat differently from the method prescribed by the law.

Small insurance societies whose activity is very restricted in respect of scope, area or membership, are placed under the inspection authorities of the States in which they are situated; and this even if they extend operations beyond the borders of this State, provided that the Minister of National Economy in agreement with the government of the State in question so decides.

These societies come under a part only of the rules contained in the section of the law relating to mutual insurance societies.

The law on the supervision of insurance societies is divided into ten sections: (1) preliminary matter; (2) authorisation to operate insurance; (3) mutual insurance societies; (4) management of the affairs of insurance societies (general provisions, submission and examination of the budget, special provisions respecting the reserves of life insurance societies and provisions for prior claims in the event of bankruptcy in respect of insurance against losses); (5) supervision of insurance societies (functions and rights of authorities responsible for supervision); (6) undertaking of foreign insurance; (7) building savings funds (*Bausparkassen*); (8) temporary provisions; (9) penalties; (10) final provisions.

Law Relating to Contagious Diseases. — It has already been noted when examining the insurance contract in respect of live stock mortality that the insurer is not bound to payment of the compensation in the case where the loss incurred, consequent on a disease, contagious or otherwise, which has attacked the insured animal, carries the right to compensation by the public authorities, even if the insured owner has lost the right owing to infringement of the governmental provisions on the subject of contagious diseases.

It may be of interest to examine the important law of 26 June 1909 which regulated the whole question of contagious disease with the exception of cattle plague, which is subject to a separate legislative regulation.

This law, which contains 82 articles, after defining live stock and suspected animals, and after having established the competent authorities as the governments of the separate States, passes on to measures of protection against contagion coming from abroad. The law prohibits the import of animals attacked by a contagious disease, or suspected, or even of those which have been affected by a similar ailment; the import is also prohibited of products of such animals or of any object which might be presumed to convey the contagion virus. For the sake of preserving immunity, prohibition or limitation of live or dead animals and of products of such animals may be proclaimed either generally, or for certain frontier localities. So as to avoid the introduction of live stock attacked by a contagious disease, all animals with undivided hoofs, all ruminants and all pigs are subjected to a medical inspection by an official veterinary surgeon either at the frontier or on arrival at a German port. Animals found to be diseased or suspect are excluded. Ruminants and pigs which have arrived by sea and the introduction of which is permitted by the veterinary surgeon must remain in quarantine during four weeks in a depôt set aside for the purpose, and only after this period can be admitted into German territory.

Articles 8 to 73 prescribe the measures for combatting epidemics within the country. In the first place general measures are enacted; then follows the provision that every owner of an infected or suspect animal, or any person who has the care or supervision of such animal, must immediately notify the police. Others bound to make this declaration are: all veterinary surgeons of inspectors of butcher's meat, all butchers, etc.

The following is the list of the diseases subject to declaration:

(1) anthrax, symptomatic anthrax; haemorrhagic septicaemia of cattle;
(2) Rabies;
(3) Glanders,
(4) Foot and mouth disease;
(5) Contagious pulmonary disease of cattle;
(6) Sheep pox,
(7) Covering disease of horses.
(8) Coital rash of horses and cattle ;
(8) Wart disease of horses, mules and sheep,
(9) Haemorrhagic septicaemia of pigs and swine fever;
(10) Erysipelas or red murrain and nettle fever of pigs;
(11) Chicken cholera and pest;
(12) Tuberculosis of cattle which has recognisable external characteristics, in so far as it has reached an advanced stage in the lungs, the udders, the uterus or the intestines.

Sanitary police measures established in the law under review, and designed to combat epidemic contagious diseases, are either preventive or eliminative. The first category includes for example the veterinary inspection at the time of transport of animals, the limitation of access or even closing of markets or of shows to animals carriers of disease, etc. These measures may be of permanent type, *i. e.*, independent of the occurrence of cases of these diseases, while the eliminating measures are taken only on the outbreak of a contagious disease and continue in force for its duration only. To this group of measures belong, *e, g.*, the isolation and supervision on the part of the sanitary police of infected or suspected animals, the interdict placed on the farm and even on the locality to carry on trade in animals, the inoculation or the slaughter of animals infected or suspect, the public notification of the outbreak and of the end of the epidemic, etc. In addition to these general measures designed to combat contagious diseases the law contains a series of special instructions enacted with a view to one or other disease.

Small Local Societies for Insurance

Year

No	States	Number of societies	Horses		Cattle	
			number	value	number	value
1	Baden	929	3,000	2,100,000	310,000	93,000,000
2	Bavaria (incl the Palatinate)	(1) 268	12,658	8,860,600	56,553	16,965,900
3	Brunswick	(1) 256	7,318	5,122,600	7,630	2,289,000
4	Hanover,	(1) 1,372	58,121	40,684,700	116,373	34,911,900
5	Hesse-Nassau	442	21,754	15,227,800	82,494	24,748,200
6	Electoral Hesse	271	7,753	5,427,100	61,376	18,412,800
7	Electoral Mark	(1) 193	4,271	2,989,700	7,419	2,225,700
8	Mecklenburg	148	12,114	8,479,800	5,459	1,637,700
9	Oldenburg	103	15,141	10,598,700	13,916	4,174,800
10	Eastern Prussia	(1) 455	3,961	2,772,700	37,674	11,302,200
11	Pomerania	51	4,853	3,397,100	7,019	2,105,700
12	Rhenish Prussia	754	38,467	26,926,900	68,709	20,612,700
13	Anhalt	600	35,149	25,498,289	36,469	8,254,604
14	Free State of Saxony	(1) 65	30,996	21,697,200	986	295,800
15	Silesia	(1) 99	2,327	1,628,900	7,725	2,317,500
16	Schlesvig-Holstein	(1) 288	22,886	16,020,200	18,971	5,691,300
17	Thuringia	386	16,311	11,417,700	46,905	14,071,500
18	Westphalia	(1) 693	23,257	16,279,900	71,108	21,332,400
19	Wurtemberg	1,405	19,309	13,516,300	624,626	187,387,800
20	Territory of the Saar	14	208	161,700	4,157	1,433,238
		8,792	339,854	238,807,889	1,585,569	473,170,742

(1) As a certain number of societies have not supplied these data, average figures have been inserted.

gainst Live Stock mortality.

1935

Pigs		Goats		Sheep		Total	
number	value	number	value	number	value	number	value
—	—	—	-	—	—	313,000	95,100,000
860	86,900	1,490	29,800	-	—	71,570	25,943,200
40,629	4,062 900	2,300	46,000	—	—	57,877	11,520,500
89,640	8 964 000	2,822	56 440	112	3,360	267,068	84,620,400
20,353	2,035,300	3,908	78,160	-	—	128,509	42,089,460
12,496	1 249 600	3,168	63 360	—	--	84,793	25 152 860
27 042	2 794 200		—	1,681	50,430	41,313	8,060,030
10,818	1 081,800		-	-	—	28,391	11,199,300
2,035	203 500	50	1,000		—	31,142	14,078,000
		64	1 280			41,699	14,076,180
13 868	1 386,800	60	1 200			25,800	6,890 800
12,449	1 244,900	1,755	35,100		—	121,380	48,819,600
180,202	31 535,350	5 831	102,524		—	257,651	65,390 767
3,680	368,000	-	—	-	—	35,662	22,361,000
10,860	1,086,000	423	8,460	—	-	21,335	5,040,860
26,100	2 610,000	—		—	--	68,017	24,327,500
8,276	827,600	8,421	168,420	-	—	79,913	26,485 220
28,953	2,895,300	4,313	86,260	-	--	127,631	40,593,860
3,354	335,400	655	13,100	—	-	647,944	201,252,600
—	-	1,709	53,379	—	-	6,074	1,648,317
492,584	62,773,550	36,969	744,483	1,793	53,790	2,456,769	775,550,454

The important question of compensation now claims attention. The slaughter of animals infected or considered as suspect in virtue of sanitary measures, the losses caused by the disease in spite of the declaration made in good time, or even by the inoculation ordered by the veterinary police, all these involve serious losses for the owner.

For several of the losses due to epidemics, in respect of which no private compensation is assigned, and in addition for certain losses due to State measures relating to the control of epidemics, compensation is awarded from the public budget.

According to the law compensation is due:

(1) For animals which have been killed in conformity with a sanitary measure or which have died after the issue of the order in consequence of a disease which has been the occasion of the order in question;

(2) For animals which, after due notification of the disease has been given, have died in consequence of glanders or of contagious pulmonary disease, provided that the conditions were those in which slaughtering has to be prescribed;

(3) For animals in the case of which it may be supposed that the death is due to the inoculation ordered by the sanitary authority;

(4) For cattle and horses which have died as the result of anthrax or symptomatic anthrax or in the case of which it has been possible after death to ascertain that they had been attacked by one of these diseases. The amount of the indemnity is determined on the basis of the ordinary value of the animal and without taking account, except in the case of tuberculosis subject to declaration, of the depreciation due to the disease or to the inoculation.

The compensation is reckoned at three fourths of the ordinary value when the animal has been attacked by glanders, to four-fifths of the ordinary value in cases of animals are attacked by anthrax, or symptomatic anthrax, by contagious pulmonary disease and by tuberculosis: in all other cases the compensation is equivalent to the total value, as, for example, where an animal has been attacked by foot and mouth disease or has died following on an inoculation.

In arriving at the amount of compensation, account is taken of the sum obtained by the owner from any utilisation of the carcase and of any contractual indemnity of private insurance; in respect of the different epidemics, there is to be considered the fraction which represents the compensation of the ordinary value of the animal.

No compensation is granted for animals the ownership of which rests with the Reich or with the separate States, nor for animals which have been imported into the territory of the Reich, contrary to a prohibition, or which have been attacked by a contagious disease within a certain period after their importation, unless proof is supplied that the infection occurred only after their introduction.

An application for compensation is of no effect, if the owner of an animal attacked by the epidemic, or even the representative of the owner, either intentionally or from negligence, has not submitted the declaration of the disease in accordance with the sanitary police instructions, or if there is, on his part, an infringement of the measures of protection enacted by the same authorities.

It is the business of the separate States to make rules as to the method of fixing the compensation, as to the body responsible for its payment, etc.

It should however be remarked that the public authorities are responsible for the whole of the compensation payable for animals slaughtered in accordance with sanitary orders, if the animals were not attacked by the disease in respect of which the slaughter was ordered; for one half of the compensation at least if the animals were attacked by foot and mouth disease and for one third if the animals were attacked by a form of tuberculosis which declaration is compulsory.

Subject to these reserves, the provisions in force in the different States remain standing.

With the same reserves and in so far as these provisions are not in contradiction with these mesaures, the States may establish that, pending furher regulation, compensation payments will be constituted from the contributions paid by the owners of the kinds of animals in question.

PRIVATE INSURANCE OF SLAUGHTER STOCK.

Insurance of slaughter stock covers losses arising in the event of the meat being declared, according to the report following the compulsory inspection at the slaughter house, either entirely unfit for utilisation or fit to be delivered for consumption only under certain restrictions.

Wherever compulsory veterinary inspection of butcher meat has been instituted, associations for insurance of slaughter stock were very shortly after constituted· these societies reimbursed their members for losses incurred when the meat proved wholly or partially unfit for consumption.

In the formation of associations of this type the lead was taken by farmers, butchers and stock dealers· certain communal and provincial administrations also instituted a service of slaughter stock insurance. The number of killings and the number of declarations of unfitness of the meat for consumption render the insurance of slaughter stock a matter of importance. The value of the meat destroyed as unfit for use is very large, and was estimated by M. Beinzger in the Manes " Versicherungslexicon " in the course of 1926 as 26 to 30 millions of marks.

The Law of 13 June 1900 regulated this question for Germany, leaving to the separate States the business of establishing the rules for carrying out the insurance within certain limits.

Fom 1 April 1903 every animal the flesh of which is intended for sale and for human consumption has to be subjected before and after slaughter to examination by experts. Only meat declared wholly utilisable may be admitted to the open market, while meat declared partially unfit for use may be sold only under certain restrictions, and meat unfit for use must be destroyed.

In 1902, insurance of slaughter stock was operated in Prussia by more than 300 undertakings. These had in 1901 insured 1,500,000 cattle, 2,350,000 pigs, 25,000 sheep and ewes, in all about 3,800,000 head of slaughter stock. The majority of the members of these associations were farmers and butchers.

The sphere of action was very limited; a large number of dealers and of farmers supplying live stock to the small towns or even to the rural communes had no opportunity of taking part in the insurance. Nor was it possible for them to form local associations, for want of an adequate membership. Hence the large insurance companies considered it a suitable moment to organise a special department of insurance at fixed premiums of slaughter stock.

In 1905 seven large companies instituted this branch of insurance. Including the Hanover stock dealers' association and seven associations of less importance insuring slaughter stock against certain risks (deterioration of quality due to trichinosis, to tape worm or to tuberculous affections), there might be calculated, for the insurances undertaken in 1905 by all these societies, an insured capital of 312,381,000 marks relating to 1,959,707 head of stock. The premiums paid by the insured persons amounted to 2,771,746 marks.

In 1935 this branch of insurance was operated by seven large insurance societies, which have insured in all 3,427,656 animals for a capital of 505,711,000 marks (1).

The small local societies are usually organised by meat dealers and by butchers as collateral organisations of their corporation. There also exist however many insurance associations independent of these organisations. Farmers' organisations for the purpose of insuring slaughter stock have become much less frequent in comparison with other associations This type of insurance is however very often included in insurance policies against live stock mortality There are also associations under the joint management of dealers in meat, butchers and farmers (2).

(Tc be continued) F. ARCOLEO.

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

REINHART, Herbert Der Rohgummi als Weltwirtschaftsproblem unter besonderer Beruecksichtigung des Plantagen-Kautschuks. Verlag Konrad Triltsch, Wurzburg, 1937

This study of the economic problem of the world rubber supply attempts to bring together in a systematic form the very rich but scattered material concerning rubber, and particularly plantation rubber, the production of which has developed enormously during the post-war years.

After a brief historical introduction the material in this study is divided into three parts. The first is concerned with production, world consumption, and market prices, of rubber. The second part deals with public and private interventional measures seeking to improve prices in the producing countries after the pre-war years.

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(1) Statistik des Reichaufsichtsamtes 1935, p. 137.

(2) MANES, Versichserungslexikon 1930, p. 1937.

The author analyses especially the Stevenson Plan and its effect upon prices, production, consumption, and upon the measures taken in various countries, and particularly in America, with a view to reducing the use of rubber.

Finally, after having submitted the plan to a critical examination, the period following its termination is considered and the possibilities of future regulation discussed. This is an interesting work which contains moreover a rich bibliography systematically arranged].

ROMMEL Curt. Zur Frostschadenversicherung der Kulturen. Bern, Stampfli & Cie, 1937.

[In this work, which studies a problem of great interest not only to those concerned with agriculture and insurance but also to public authorities, the material is divided into three parts

The first deals with frost, the damage which it causes, giving statistics concerning this damage, and also with preventive measures The second part deals historically with the development of compensation for the damage caused by frost In the third are given principles and suggestions for the better organisation of frost insurance].

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

History of Economics.

ATKESON, T C and M M **ATKESON** Pioneering in agriculture: one hundred years of American farming and farm leadership. New York, Orange Judd publishing co 1937. 222 p

WATSON, J A **SCOTT** and M E **HOBBS** Great farmers. London, Selwyn and Blount [1937] 287 p

Economics

NEISSER, H. Some international aspects of the business cycle. Philadelphia, University of Pennsylvania press, 1936. XIV, 170 p (Pennsylvanie University. Wharton school of finance and commerce. Research studies, 31).

PARKINS, A. E. Our natural resources and their conservation. New York, J. Wiley & sons, 1936. XII, 650 p.

PRINZING, A Wirtschaftslenkung. Das australische Beispiel Berlin, Junker und Dünnhaupt, 1937 XI, 192 p (Zum wirtschaftlichen Schicksal Europas, II. Teil Arbeiten zur deutschen Problematik hrsg. von Carl Brinkmann, Hft. 6)

WAGENFÜHR, H. Preise und Preispolitik. Berlin, Junker und Dünnhaupt, 1937. 176 p, (Volk und Wirtschaft. Neue Lesestucke zur politischen Oekonomie hrsg. von Horst Wagenfuhr. Hft. 8).

WOLLEMBORG, L. Scritti e discorsi di economia e finanza. Torino, F.lli Bocca, 1935. XXVIII, 696 p (Biblioteca di scienze sociali. Nuova serie, v. 2).

Legislation.

De Semo, Giorgio Corso di diritto agrario. (Tenuto nella Facoltà di giurisprudenza nell'anno accademico 1936-37-XV). Firenze, C. Cya, 1937. 372 p.

Rural Economics.

Questions agricoles Exposés de Roger Grand, Henri Noilhan, André Rouilly, [Paris, Centre polytechnicien d'études économiques, 1936]. 266 p.

Tassinari, G. Scritti di economia corporativa. Bologna, N. Zanichelli, 1937. 252 p.

Co-operation

Bayerischer Landesverband landwirtschaftlicher Genossenschaften Raiffeisen, e V. Munchen, Jahresbericht, 1935, 1936. [München], [Rischmöller & Meyn], [1936], [1937]. 2 v.

Credit.

Conférence internationale du crédit agricole. Actes de la V^e Conférence internationale du crédit agricole. Vienne 9-11 septembre 1936. Rome, Secrétariat des « Conférences internationales du crédit agricole », 1937. 479 p.

Labour

Gazier, H. Législation et jurisprudence des accidents du travail dans l'agriculture Paris, Recueil Sirey, 1937. XI, 411 p

Suède Socialstyrelsen Skogsbygdens arbets och levnadsvillkor. v. 2. Önskemål och förslag (enligt avgivna utlåtanden) Stockholm, P. A. Norstedt & söner, 1937. 227 p (Sveriges officiella statistik. Socialstatistik).
[Les conditions de travail et de vie dans les régions forestières. – Desiderata et propositions].

Industries.

Afferni, E. Il problema della gomma sintetica nei suoi aspetti mondiali. Milano, A. Giuffrè, 1937. XI, 77 p.

Bourse aux cuirs de Bruxelles. Annuaire 1936, 1937. Bruxelles, [1936], [1937]. 2 vols.

Dalton, J. E. Sugar. a case study of government control. New York, MacMillan co., 1937. X, 311 p.

Miscellaneous.

Annuario ordinamenti e gerarchie d'Italia. Amministrativo, corporativo, sindacale, agricolo, industriale, commerciale. Anno 1937, 4^a ed. Milano, Ravagnati, [1937], 1031 p.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
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THE CONSUMPTION OF MEAT *

SUMMARY: Introduction. — Some causes of the increase in meat consumption in the course of the XIXth century — Present position of meat consumption in the different parts of the world. — Probability of an increase in meat consumption in the near future.

At the beginning of the XIXth century, the consumption of meat was throughout Europe, for the large mass of the population, alike in country and town, very small indeed as compared with the present consumption, and moreover the greater part of the small quantity consumed was in the form of salt, smoked or dried meat. Apart from game, it was usually during two or three autumn months only, on the occasion of the great annual slaughtering, that fresh meat was eaten and this was equally the case with the richer people. In the course of the XIXth century, under the influence of several factors depending as much on supply as on demand, these conditions have been radically altered; there is a constantly increasing consumption of fresh meat and in many countries the total consumption of meat per head is being doubled, trebled or even quadrupled.

Some Causes of the Increase in Meat Consumption in the Course of the XIXth Century.

Among the changed conditions affecting the supply of meat there were some which may be dated earlier, but their full development belongs to the XIXth century, as for example the disappearance of the open field system, the consolidation of holdings previously scattered and their enclosure, the modification of the former three-field system of cultivation— winter cereals, spring sown cereals and fallow—the introduction into the rotation of the growing of mangolds and other edible roots and of artificial grasses, and especially the scientific breeding and feeding of farm animals.

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* Some of the main sources indicated by figures in the text will be found at the end of the article.

The disappearance of the open field system enabled each farmer to introduce with advantage, and without let or hindrance, the new system of crop rotation. The cultivation of roots and artificial grasses, which do not remove from the soil the same elements as do the cereals, did away with the necessity for leaving the lands in fallow and increased the area under production very considerably, thus rendering practicable an adequate supply of winter feed for an increasing number of live stock. The enclosure of the ploughed land, as well as the division of the common lands, involved, undoubtedly, for the poorer strata of the population, a decided decrease in the supply of meat, but it represented on the other hand a considerable increase in the total quantity produced of this class of food-stuffs.

The result of the scientific breeding and feeding of farm animals which, as already stated, became widely adopted only in the XIXth century, was seen in a larger gross weight of slaughter stock and in a higher percentage of net meat per animal, thus in a more rapid securing of a sufficient dead weight, and in consequence quicker sales. In Germany, from 1800 to 1903-05, the dead weight increased for steers by about 85 per cent, for heifers and young bullocks by about 112, for pigs by 108 and for sheep by 47 per cent (1) In France, towards 1860, cattle were placed upon the market at the age of 6 to 8 years, while just before the world war the market age was only 3 to 5 years; in the same country whereas in 1862 the average net weight of steers, calves and pigs was respectively 225, 39 and 88 kg., it rose immediately before the war to about 312, 80 and 111 kg. respectively, or a respective increase of about 38, 105 and 26 per cent. As a consequence of the increase in dead weight the total production of steers, calves, sheep and pigs in France has doubled in the course of the last 50 years and that although the number of cattle has increased only by one fourth in the course of the same period, that of pigs by one third only and the number of sheep has seriously declined (2).

Among the other factors which have contributed markedly to an increase in the production of meat, while making their appearance only towards the end of the XIXth century, there should be mentioned the use of chemical fertilisers, with the consequent increased production of forage, the constantly increasing use of artificial feeding stuffs, and the changes which have revolutionised the methods of slaughtering and of distribution of meat with the invention of artificial refrigeration and the development of means of transport. These latter changes date from about 1870 when the first consignments of frozen meat reached Europe from the United States, from South America and from Australia, and thereupon opened to the European consumer those immense "meat reservoirs" where formerly animals had been raised and slaughtered merely for their fat and their hides. In conclusion, it should be added that the gradually more extended knowledge of the nature and manner of diffusion of the more dangerous contagious diseases which formerly, and often at short intervals, decimated the herds, has contributed essentially to an increase in the production of meat.

Among the numerous factors which have contributed, in the course of the XIXth century, to the increase in the demand for meat, some of the more important only will be indicated here: the general rise in real wages, the concentration of the population in towns, the recommendations of the nutrition physiology, the changes in the age constitution of the population, compulsory military service, etc. Life in the towns, especially in the large towns, with its artificial conditions of work and existence especially for the poor man—the time spent in houses, places of work and of amusement cramped and ill-ventilated, the sedentary work which makes no demand on physical effort, absence from home often for the whole day, the always increasing difficulty of obtaining foodstuffs in the natural state, etc.—increased the need for a highly stimulating form of nourishment, possessing great satiety value, and not requiring much or any preparation to be appetising, all qualities possessed by meat. It remains for a relatively long time in the stomach, it sets up, as do many other stimulants, an almost immediate sense of increase of force and vigour, and for the busy workman's wife who has often another occupation and who is not a very skilful cook, meat is a dish which can be quickly prepared in savoury fashion, with the simplest ingredients, and which if in the form of pork-butchers' meat does not demand any preparation. Taking into consideration also that the town population has, the whole year, under its eyes, much more than the rural population, all kinds of meats and meat products displayed for sale, and that every day it is subjected to the influence of the commercial and scientific propaganda in favour of an increasingly carnivorous diet, it is not in any way surprising if the consumption of meat has increased parallel with the increase in the urban population.

It is no less certain that the teachings of Liebig, Moleschott, Playfair and many other celebrated scientific workers towards the middle of the XIXth century, in regard to protein as the only source of muscular force —"the noblest of the elements of nutrition " as Liebig said—led to an increase in meat consumption. It is true that Voit and Pettenkofer demonstrated the falsity of this idea, but none the less Voit, on the basis of his metabolism experiments, and of enquiries into budgets and consumption of meat in the city of Munich, judged the essential requirements of an adult man weighing 70 kg. and engaged in physical work for 9 or 10 hours per day, to be 118 grammes of protein per day, of which a proportion must be supplied by a ration of meat of 230 grammes including bone and fat (3). These requirements were adopted as rules in the physiology of nutrition and up to the time of the world war were often considered as minimum requirements.

Undoubtedly the compulsory military service introduced in the course of the XIXth century was the cause of an immense increase in the consumption of meat in general, by habituating one group after another of young conscripts, for the majority of whom meat had been a rare luxury, to consume each day a ration of meat the size of which was determined in respect of the exaggerated nutritive value ascribed to flesh food by Liebig and Voit. From the middle of the XIXth century up to the time of the world war the conscripts of the greater number of the European countries received a peace ration of about 200 to 300 grammes of meat per day and a war ration of 400 to 500 grammes (4). The recent increase of the meat consumption in a number of countries is also, no doubt, partly due to the world war, during which not only many classes of conscripts of 20 years of age, but also some large proportion of the remainder of the adult male population in the belligerent countries became accustomed to a large consumption of meat.

Finally, the consumption of meat has been, undoubtedly, increasingly affected by the general diminution in the number of births and of deaths which has been noticeable during the last decades in the countries inhabited by the white race, thus increasing the proportion of adults, the larger consumers of meat. The decline in the number of births has naturally also increased the income at the disposal of each member of the family for the purchase of the more costly foods, such as meat, this appears very clearly from several recent enquiries into family budgets. For example; according to the German enquiry of 1927-28 the expenses for meat and meat products amounted yearly, in the workers' families with 4 or more children to 63.70 marks per unit of consumption, while the similar expense in families having one child only was 118.09 marks and in childless families 150.40 marks.

Present Position of Meat Consumption in the Different Parts of the World.

Leaving the question of the causes of increased consumption of meat in the XIXth century we may pass on to our own times to give a rapid survey of meat consumption among certain of the peoples of the world With this object there are shown in Table I the data on the consumption of meat per head in a certain number of European and extra-European countries, calculated on the basis of the statistics of exportation, importation and production, while in Table II are reproduced data on the consumption of meat and the expenditure on meat in the families of urban workers, the data being drawn, for the most part, from the family budgets enquiries undertaken in the course of the last ten years (5). For the reader who is interested, this latter table also contains data on the consumption of other important animal foods containing protein, such as fish, milk, cheese and eggs. As a general critical observation in regard to the data contained in these tables, it should be added that for various reasons, some of which are mentioned in the note below, a limited value only should be attached to them for the purpose of estimating the consumption of meat in the different countries, and that comparisons between countries should be made only with considerable reserves (*).

(*) As regards the figures in Table I, it should be noted that they refer only to beef, veal, mutton and pork, and consequently exclude other types of meat, such as horse flesh, poultry, rabbits and game. In many cases, if these latter kinds of meat had been included in the total figures, much larger figures would have been reached; for Belgium, for example, it is calculated that the consumption of poultry and rabbits alone amount to 20 kg. per annum and per head (6). It should in addition be noted that while the net figure respectively of exports and imports of meat is relatively easy to establish with sufficient precision, it is impossible to do the same for that part of the national production which lies outside the public slaughterhouses or the official inspection of meat, since it has been rarely possible to make any but a very rough calculation of the number of private slaughter-

In passing in our review from the peoples that are large consumers of meat to those who consume little, there will be found—as may be easily explained—at the head of the first group primitive tribes living in the most northern regions of Asia, Europe and America, as well as the inhabitants of Tierra del Fuego and Patagonia—by now, however, almost extirpated—although the majority of these races are not so exclusively carnivorous as is generally believed. Very carnivorous races are found also in other parts of the world; for example, the Kirghiz in Central Asia who according to the investigations of the physiologist Kuczynski, consume every day—unless they are living in great poverty—one kg. of meat at least, but more often from 2 to 2 ½ kg. besides some litres of koumis, without mentioning the much larger quantities of these two foods which they succeed in consuming at the time of celebrations of any kind (8). A consumption of meat not much lower will be found also among a certain number of Hamite tribes, pure or mixed with negro blood, who are engaged in live stock farming in the steppe regions of North-East Africa. Among these special mention should be made of the Masai, much discussed during recent years in the literature on the physiology of alimentation. The essential components of their food are raw meat, blood and milk. According to the investigations of Orr and Gilks, the young men of the "moran" or warrior class, consume every day at least over a kg. of meat (1.135 gm.), 2 litres of milk and a certain quantity of blood (9).

ings and of the average dead weight of the animals thus killed Another point which renders more difficult international comparisons is that in certain countries the edible meat offals are included in the figure of meat consumed, while in other countries they are not so included.

As regards the data of Table II, it should be noted that the enquiries from which they are drawn have often been confined to one or more large towns, where the consumption of meat, as a rule, is larger than in towns of less importance. The majority of the enquiries moreover reflect only the consumption habits of the more well-to-do classes of the working population of the towns. This limitation is mainly due to the difficulty of finding among the poorer classes the stabilised methods of housekeeping, the initiative and perseverance necessary to keep household books with care and accuracy over a long period. In many cases the representative character of the figures is affected by the fact that they refer only to a relatively small number of families or that the enquiry lasted over a relatively short period only, thereby bringing the data on meat consumption, as well as those relating to some other products, under seasonal influences. It is also evident that the consumption habits, especially in our own times, have undergone fairly considerable variations in the course of a period of ten years, and consequently it is by no means certain that the figures of the table, in so far as they are drawn from enquiries dating further back than the middle of the period 1920-1030, give an exact idea of the consumption in 1937. In conclusion it may be noted that among the factors which render difficult a comparison between countries is the difference in the scales that have been utilised for the calculation of the consumption units. However, apart from the so-called new German scale (utilised in the German enquiry of 1927-28) and the so-called old German scale (used in Czechoslovakia in 1929-30), the various scales do not appear to give results so different as to make quite impossible an international comparison. As regards the figures relating to the quantities consumed in Germany and in Czechoslovakia, it should be noted that the German figures are probably somewhat lower (10—20 per cent.) and the Czech figures somewhat higher (20 per cent.) than they would have been if calculated according to the other more generally utilised scales (7).

TABLE I. – *Estimated Annual Consumption of Meat in Various Countries* (1)

(Kilogrammes per head of population)

Countries	Total meat (2)		Beef and veal		Mutton and lamb		Pork bacon and lard	
	1925-29	1930-34	1925-29	1930-34	1925-29	1930-34	1925-29	1930-34
Argentina (3)	120.8	120.8	114.0	108.4	7.3	6.8	5.5	5.6
New Zealand (4)	106.8	103.8	(5) 60.4	(5) 53.3	35.9	41.8	10.5	8.7
Australia (4)	107.2	91.5	69.0	46.2	30.0	37.3	8.2	8.0
Canada	69.1	65.4	30.9	27.5	2.8	3.2	35.4	34.7
United Kingdom	62.4	63.7	(6) 31.5	(6) 29.1	(6) 12.3	(6) 13.9	18.6	20.7
Denmark	47.0	62.4	21.9	26.4	—	—	25.1	36.0
United States	62.3	61.9	24.2	23.4	2.5	3.1	35.6	35.4
Esthonia (7)	58.4	53.4	14.6	19.2	7.0	5.4	30.8	28.8
Germany	49.9	51.1	17.2	16.2	0.8	0.6	31.9	34.3
Switzerland	(8) 44.2	47.3	(8) 25.5	25.5	(8) 0.7	0.6	(8) 18.0	21.1
Netherlands	42.5	45.6	20.0	17.9	0.4	0.5	(9) 22.1	(9) 27.2
France (10)	41.7	43.5	21.2	22.7	3.2	3.1	17.3	17.7
Belgium	36.2	39.2	19.3	18.1	0.6	0.6	16.3	20.5
Sweden	(11) 38.7	(12) 36.1	(11) 19.0	(12) 14.0	(11) 0.7	(12) 1.1	(11) 19.0	(12) 21.0
Czechoslovakia	34.2	33.3	13.3	12.5	(13) 3.4	(13) 3.3	17.5	17.5
Norway	31.0	33.1	14.4	14.7	5.5	5.4	11.1	13.0
Finland	28.3	26.7	14.5	13.3	1.8	1.3	12.0	12.1
Russia (14)	23.2		9.9		4.7		8.6	
Roumania		22.0	—	7.5		3.5		11.0
Poland	18.0	18.7	6.9	7.3	0.3	0.2	10.8	11
Italy	19.8	16.1	11.8	9.8	1.6	1.3	6.4	5.0

(1) Except for France, Esthonia, Russia and Argentina all figures are taken from League of Nations: La problème de l'alimentation, Vol. IV. Statistique de la production, de la consommation et des prix. Documentation preparée par l'Institut International d'Agriculture. Revised edition to be published later. – (2) Excluding poultry and game, goat's and horse flesh. – (3) The figures which refer to the periods 1926-30 and 1931-34, are calculated on the basis of data published in *Foreign Crops and Markets* (Washington), Vol. 30, June 10, No. 23, p. 655. – (4) Averages for the agricultural years 1924-25 to 1928-29 and 1929-30 to 1933-34. – (5) Veal not included, the wide variations in the weight of carcasses under this heading making impossible any accurate estimate. – (6) Averages based on annual figures referring not, as in the case of pork, to calendar years but to the twelve months periods June-May. – (7) Figures (averages for the agricultural years 1924-25 to 1928-29 and 1929-30 to 1933-34) calculated on the basis of data taken from *XIII Annuaire de la Statistique agricole* 1934. Tallinn 1935, p. 39. – (8) Averages for the three years 1926, 1928 and 1929. – (9) No allowance made for variations in the export of lard. – (10) Figures taken from the article THE WORLD SITUATION IN CATTLE AND BEEF, *Foreign Crops and Markets* (Wash.), Vol. 21, No. 3, 1930, p. 83 and Vol. 30, No. 23, 1930, p. 656. – (11) 1924-28. – (12) 1932-33. – (13) Included under this heading are also horse and goat's flesh. – (14) The figures, which refer to the period 1924-25 to 1928-29 are calculated on the basis of data published in CATTLE AND BEEF SURVEY. A SUMMARY OF PRODUCTION AND TRADE IN BRITISH EMPIRE AND FOREIGN COUNTRIES. Prepared by the Intelligence Branch of the Imperial Economic Committee. London 1934, p. 159.

Among the peoples of western civilisation, the largest consumption of meat is found in the countries where the population is originally from Europe: Argentina, New Zealand and Australia, *i. e.* countries with a superabundance of live stock and a comparatively small population. From Table I it appears that the meat consumption, per head and per annum, was in Argentina 121 kg., in New Zealand 104 kg. and in Australia 92 kg. It appears also that, for meat consumption as shown by the enquiries into family budgets reproduced on Table II, there stands first in this respect the workman of the Argentine capital (91 kg. per annum and per unit of consumption). There can be little doubt that if budget enquiries were available quite as high a consumption could be noted among the urban workers of Australia and New Zealand.

A smaller consumption figure but still a high one is to be found in Europe. For the majority of the European countries shown on Table I, the average consumption, per head and per annum, was from 30 to 60 kg.; in Denmark and in England it exceeded 60 kg. and fell in Russia, Romania, Poland and Italy respectively to 23, 22, 19 and 16 kg. In other words, the figures of the table prove what might have been expected taking into account differences in climate, distribution of population according to occupations, standard of living, etc., *viz.*, that in the northern and central parts of Europe the consumption is relatively high, while it is low in the East and in the South.

Confirmation of this generalisation, with some exceptions, is found in the data shown on Table II relating to the consumption calculated by unit of consumption, but it is evident that whereas in one case it is a question of data on the average consumption of all the population, and in the other case it is one of the consumption of a relatively restricted stratum of population, workers in towns, an absolute agreement as to the order on the list of the different countries cannot be expected It will be noted that for the majority of the budget enquiries consumption per unit of consumption and per annum is about 40 to 50 kg. The highest consumption figure was reached by the working families of Vienna (84 7 kg.) and of Copenhagen (73.6 kg.), the lowest figure for the workers' families of Southern Italy and Sardinia (Lecce, Palermo, and Cagliari) which are respectively 5.6, 10.9 and 13 kg.

An equivalent consumption of meat, and often even less in quantity than that of the Italian towns referred to, is to be noted, with a few exceptions —among which should be named those tribes of North-East Africa and Central Asia mentioned above—as occurring with all the nations and all races inhabiting the immense steppe and desert territories extending from the North of Africa across Asia Minor, Syria, Palestine, Arabia, etc , as far as Mongolia. This scanty consumption will be found as much in the towns as among the dwellers in the open country whether farmers or nomads. The budget enquiry undertaken in 1930 among the Arab and Jewish population of Palestine, for example, supplies proofs in respect of the very small quantities of meat consumed in the parts of the world indicated above. Thus among Jewish workmen, coming originally from the Orient, living in towns (see Table II), the consumption of meat was 11 to 12 kg. per annum and per unit of consumption, and

TABLE II. — *Consumption of and Expenditure on Meat and Other Animal Protein Foodstuffs in Urban Workers' Families according to Recent Family Budget Investigations.*

COUNTRY	Localities	Date of enquiry	Number of families included	Average number of members per family	Average number of consumption units per family	Average annual total expenditure in national currency per family	Food expenditure as % as total expenditure	Expenditure on animal foodstuffs as % of total food expenditure	Expenditure on meat as % of total food expenditure	Expenditure on fish as % of total food expenditure	Annual consumption per consumption unit: Meat	Fish	Whole milk	Cheese	Eggs
											kg	kg	lit	kg	number
Norway	Towns	1927-28	135	4.10	3.36	Kr 4,208	42.9	56.7	18.7	6.9	40.7	46.7	(2) 152.5	8.1	137
Sweden	Towns and industrial centres	1933	610	4.11	3.38	Kr 3,659	34.7	52.8	18.3	3.0	47.8	17.1	(3) 233.8	6.1	226
Denmark	Copenhagen	1931	149	3.59	2.97	Kr 4,499	35.2	48.3	22.9	2.8	(4) 73.6	—	(5) 89.8	5.4	216
	Provincial towns	1931	236	3.89	3.12	Kr 3,496	33.3	50.3	21.8	2.2	(4) 60.1	-	(6) 103.3	5.0	164
Finland	Towns and industrial centres	1927-28	581	4.57	3.45	M. 25,266	48.1	54.1	13.9	2.8	33.4	15.4	(7) 297.9	1.1	59
Great Britain	Port of Liverpool	1929-31	332	-	(8) 2.91	£ 121-6-8	(9) 47.9	51.7	(10) 28.5	-	—	—	—	—	—
	Cardiff	1928	56	6.8	4.55	-	(11) 56.9	-	—		40.8	(12) 8.5	53.4	—	—
	Reading	1928	57	6.5	4.35	-	(11) 56.5	-			45.3	(12) 6.1	97.5	—	—
Germany	Large towns	1927-28	896	4.2	—	M 3,325	43.8	52.2	25.7	1.4	46.3	6.6	(13) 148.1	4.8	152
Netherlands	Amsterdam	1934-35	75	4.04	(14)	Fl 1,895	34.7	44.5	14.2	2.2 (11)	(14)		(14)	(14)	(14)
Belgium	Industrial centres	1928-29	809	4.4	3.21	Fr. 20,067	(15) 58.2	37.6	22.5	1.7	49.7	9.2	(16) 142.7	5.5	199
Austria (17)	Vienna	1931	73	3.32	—	Sch 4,499	44.9	50.1	(18) 23.5	1.1	84.9	4.1	(19) 180.1	3.8	200
Czechoslovakia	Prague and other industrial centres	1929-30	262	3.93	2.62	Kr 16,700	56.0	50.4	(20) 21.8	0.5	(21) 43.3	-	192.5	—	170
Esthonia	Tallinn	1925	230	4.1	2.91	(22) M 114,410	58.5	45.6	18.[illegible]	[illegible]	46.9	50.0	([illegible]) 184.9	0.1	8
Poland	2 towns, industrial centre	1929	84	4.99	3.87	Zl 3,467	56.2	49.0	(24) 24.7	-	46.6	4.6	(25) 77.7	1.8	57
Bulgaria	Towns	1927-28	93	4.2	3.02	Lev 42,407	49.2	56.0	15.8	1.6	(26) 31.7	4.0	(27) 26.7	6.4	72
Italy	Bolzano	1929	43	5.9	4.91	—	—			-	29.7	1.4	208.2	3.3	134
	Milano	1929	52	4.9	4.06	—	—	-	—	—	42.0	4.0	99.5	7.3	235
	Salerno	1929	134	6.1	4.92	—	—	-		-	10.9	12.8	25.0	3.3	121
	Lecce	1929	36	6.4	5.39	—	-	-	.	-	5.6	10.2	13.8	3.7	51
	Cagliari	1933	11	6.0	4.88	-	—	—	-	-	13.0	11.1	23.4	7.3	34
	Sassari	1929	82	5.9	4.60	—	—	-		-	22.1	13.3	63.7	8.4	128
United States	Detroit	1929	100	4.5	3.27	$ 1,720	32.3	53.4	20.6	1.7	53.2	4.6	(28) 92.3	2.2	295
Mexico	Mexico City	1934	275	—	4.10	$ 1,142	56.4	37.9	14.7	0.0	48.2	0.9	122.9	1.7	99
Argentina (29)	Buenos Aires	1933	—	5	3.2	—	—	38.8	21.3	1.7	91.3	11.4	228.1	1.8	172
Palestine	Towns														
	Ashkenazic Jews (30)	1930	25	5.04	3.89	—	—	—	-	-	21.7	(32) 8.8	64.4	3.9	329
	Sephardic Jews (31)	1930	18	5.88	4.57	—	—	—	-	—	11.2	(32) 5.0	37.2	3.8	219
	Yemenite Jews	1930	15	4.86	3.69	—	—	—	—	-	12.1	(32) 3.2	41.8	3.3	219
	Other oriental Jews	1930	16	5.25	4.03	—	—	—	—	-	10.8	(32) 1.6	32.2	3.7	219
CHINA	Peking	1926-27	48	4.58	3.38	$ 203	71.2	([illegible]) 3.2	(33) 3.1	(33) 0.0	(33) 2.3	(33) 0.3	(33) 0.0	(33) 0.0	(33) 0.5
	Shanghai	1927-28	230	4.76	3.78	$ 390	57.2	13.1	6.9	1.4	(34) 5.9	7.6	(35) 0.0	0.0	27
Japan	10 industrial centres	1933-34	1,083	4.20	3.12	Yen 947	32.7	14.4	2.8	9.0	—	—	—	-	—
India	Bombay	1921-22	2,473	4.2	3.4	Rs 574-13-0	60.9	14.9	5.0	4.6	4.9	—	5.81	0.0	0.0
French Indo-China	Hanoi	1923	(36) 20	—	—	Piast. 120	(37) 75.8	19.2	11.0	6.8	—	—	—	—	-
Burma	Rangoon	1926-27	(38) 992	3.71	3.01	Rs 680-3-0	52.8	37.4	13.2	22.9	17.9	31.9	0.0	0.0	4

NOTES

(1) *General remarks.* The sign — signifies that no data are available. — Figures on expenditure and consumption, given in some investigations for a shorter period than a year, a week, a month, etc., have in the table been calculated on an annual basis. — In the expenditure on animal foodstuffs there is as a rule also included expenditure on fats of vegetable origin. — When not otherwise stated, food expenditure includes expenditure on tea, coffee, cocoa, spices and drinks. — In all cases where the quantities of milk and eggs are given in kilogrammes, they have in the table been converted into litres and numbers respectively by dividing the quantity of milk by 1,031 (the weight of 1 litre being about 1.031 gr.), and multiplying the quantity of eggs by 17.5 (the weight of 1 kg. of eggs being taken as equal to about 17.5 eggs). — (2) In addition 31.3 litres skimmed milk and 11.3 litres other forms of milk. — (3) In addition 7.8 litres skimmed milk. — (4) As quantities for all the various kinds of meat are not to be found in the source, the figures for the total meat consumption are in part estimations made from data on expenditure and the price information given in the retail price statistics for similar products as those for which no quantity figures have been available. — (5) In addition 1.0 litre skimmed milk and 8.9 litres other forms of milk. — (6) In addition 11.1 litres skimmed milk and 23.6 litres other forms of milk. — (7) In addition 20.9 litres skimmed milk. — (8) Median number of equivalent adults. — (9) Expenditure on alcoholic drinks not included. — (10) Meat and fish. — (11) Expenditure on beer and other alcoholic drinks not included. — (12) Fish and game. — (13) In addition 1.7 litre other forms of milk. — (14) Data not yet published. — (15) Refers to the food expenditure in the 116 families in which also the expenditure on items other than food was investigated. — (16) In addition 7.3 kilogrammes buttermilk. — (17) Figures on annual consumption refer to 32 families only. — (18) Expenditure on bacon not included. — (19) In addition 2.1 litres other forms of milk. — (20) Expenditure on bacon included (bacon not included under meat in the source). — (21) Excluding offals for which quantities are not given. — (22) The figures refer to the 176 families in which also the expenditure on items other than food was investigated.

— (23) In addition 9.9 kilogrammes other forms of milk. — (24) Expenditure on meat and fish. — (25) In addition 5.8 litres other forms of milk. — (26) In addition 3.1 fowls. — (27) In addition 5.2 kilogrammes other forms of milk. — (28) In addition 9.6 kilogrammes condensed and evaporated milk and 3.5 kilogrammes buttermilk. — (29) Figures refer to the consumption in a family of five members (3.2 consumption units) considered, according to the results of the budget investigation, as typical and used for the construction of index-numbers. — (30) Jews chiefly from Central and Eastern Europe. — (31) Mediterranean Jews of Spanish origin. — (32) Including some small quantity of tinned meat. — (33) Refers only to families taking their meals at home. — (34) In addition about 1 kilogramme of fowl's and duck's blood. — (35) In addition a small fraction of a can of milk powder. — (36) Unmarried workers with an average monthly income of 10 piastres, the whole of which is here supposed to have been spent. — (37) Alcoholic drinks not included. — (38) Burmese families only.

with the two nomad Arab tribes forming the object of the enquiry, the one wealthy and the other poor, the consumption reached only 18 and 9 grammes per day respectively, or 10 and 3 kg. per year. Although for the majority of the nomad or semi-nomad peoples here under discussion, wealth consists, for the greater part, of cattle, sheep, goats, camels and horses, meat is merely a quite occasional form of nourishment, and their manner of living is markedly vegetarian, the principal foodstuffs being cereals and other vegetable products, and in the second place milk and milk products. In the two Arab tribes quoted, whose manner of living may be considered as typical for the other nomad and semi-nomad peoples of North Africa and of the Near East, cereals alone supplied in the rich tribe about 60 per cent. and in the poor tribe about 80 per cent. of the calories, while the foodstuffs of animal origin supplied only 14.6 and 12.3 grammes of the total protein which actually amounted to 101 and 107 grammes.

A meat consumption similar to that of the Near East is to be found in the south of the North American continent—in Mexico (*) and in the small republics of Central America—and in South America among the numerous descendants, pure or mixed, of the former civilisations of the high tablelands of the Andes—in Colombia, Ecuador, Peru and Chile—among the majority of the negro populations of Africa, whether Bantu or Sudanese (10), etc. Again in the southern and south eastern parts of the Asiatic continent, the area inhabited by almost one half of the human race, it is found that the place of meat in the diet is, if possible, even less, and that for hundreds of millions of people it is of no importance whatever.

In India some importance attaches to meat among certain tribes quite in the north of the peninsula, but going southwards meat tends to disappear, as well as other foods of animal origin, and the nourishment of the people becomes entirely vegetarian (11). As shown in Table II, in 1921-22 even in a large town like Bombay the consumption of meat, for workers' families, did not exceed 5 kg. per annum and per unit of consumption. In Siam, an enquiry into family budgets made in 1930-31 among the agricultural population showed that meat was eaten only once or twice a month (12), and in Burmah it is generally understood that the cultivator cannot pay for the luxury of eating meat more than once a week (13), although from Table II it appears that the position is better for the more highly paid classes of workers in Rangoon who are able to allow themselves a meat consumption of about 18 kg. per annum and per unit of consumption, a remarkably high quantity for a worker in the Far East.

The unimportance of meat as a food among the native population of Netherlands India will be seen from the fact that according to estimates made some years ago by the Central Office of Statistics at Batavia, the consumption,

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(*) A consumption of meat such as shown by the budget enquiry of 1934 to exist among the workers in the city of Mexico— 48 kg. per annum and per unit of consumption— is in no way representative for the consumption of the great mass of workers and of cultivators in Mexico.

per day and per head of native population, of beef (the chief kind of meat consumed, pork not being eaten for religious reasons) was scarcely 5 grammes, or less than 2 kg. per year (14). In China the situation is similar. In Pekin, for example, as shown in Table II, the consumption of meat, according to a budget enquiry of 1926-27, among workers' families hardly amounted to 2.3 kg. per unit of consumption and per annum, while among the workers of Shanghai with their higher level of wages, a somewhat higher figure was shown by the budget enquiry of 1927-28, but still very small, *viz.*, 6 kg. per unit of consumption and per annum.

In Japan the calculations of Toda showed that in the course of the period 1917-24 only 6 grammes of meat were consumed per head and per day, or 2.2 kg. per annum. A little later, in 1925, Grey estimates the consumption of meat at about the same figure per unit of consumption, *viz.*, 7 grammes per day or 2.6 kg. per annum (15). The unimportance of meat in the diet of an urban worker in Japan appears from the fact that, according to a budget enquiry made in 1933-34, meat represented only 2.8 per cent. or 0.7 *yen*, of the yearly expenditure for nourishment. The enquiry supplies no data in regard to the quantitative consumption.

As an animal protein yielding food, fish with other water organisms is much more important than meat in the greater number of the countries just discussed in the south and south east of Asia, while milk and milk products—except among the peoples of the extreme north of India already mentioned above—have only a very small importance or none at all On the other hand the consumption of milk especially condensed milk, shows a steady increase in recent years in many of the towns of the Far East Speaking generally, in the Far East animal protein constitutes only a very small proportion of the total of protein consumed. Thus a budget enquiry, made in 1932 and 1934 among the farming families of Central Java, shows that animal protein formed only from 2 to 10 per cent. -in many families not even 1 per cent—of the total protein (16); and from the two budget enquiries made in Pekin and Shangha ireferred to previously, it appears that among the workers' families taken into consideration in the enquiry, out of the total of protein consumed 1 7 and 6 2 per cent. respectively represent the protein of animal origin. It might also be added that a budget enquiry relating to more than a thousand farm households in Central China shows that one per cent. only of the total energy is derived from animal sources (17), in Japan, according to the study made by Toda, four per cent. only of the total supply of energy from the population come from food products of animal origin, *viz.* fish 2.9 per cent meat and eggs 0.3 each and milk and milk products 0.1 per cent (18).

Leaving the question of the total consumption of meat in the different parts of the world a few observations may be made on the place occupied at the present time by the different kinds of meat in the dietary system of the various peoples. In the countries of Western civilisation, whether in Europe or elsewhere, as appears from Table I, beef and veal represent in general 40 to 50 per cent. of the total consumption. In Germany and in Romania the proportion is much lower, or about 30 per cent., while in Italy it is higher (about 60 per cent.), and still higher in Argentina, where 90 per cent. approximately of the total consumption of meat is constituted by beef and veal. The place taken by pork in the diet seems to follow very similar lines, speaking generally. The proportion is exceptionally large in countries such as Denmark, the Netherlands, Poland, Sweden, the United States, where from 1930 to 1934 the percentages of pork in all the meat consumed were roughly 60 in each case. In Germany in the course of the same period, pork represented two thirds of the total consumption. It has little importance in Argentina (5 per cent. approximately), in Australia (about 9 per cent.) and in New Zealand (about 8 per cent.). From the figures of the table it appears that in the dietaries of the countries affected by Western civilisation, mutton occupies an important place only in Australia and in New Zealand (where from 1930 to 1934 about 40 per cent. of the total consumption was mutton), and among European countries in Great Britain, Norway and Romania, where during this same period the respective figures were 21 8, 16.3 and 16.0 per cent. In the other countries, as will be seen, the consumption of mutton at a maximum does not exceed 10 per cent. and in many cases only represents 1 to 2 per cent. There is, however, little doubt that in certain countries of Southern Europe, such as Portugal, Spain, Yugoslavia, Greece, Albania, Bulgaria, for which no statistics of meat consumption per capita are available, but where the conditions are particularly favourable to sheep raising on a large scale, the consumption of mutton (and of goat's flesh) is relatively important, and it should be observed also that the low figures for consumption of mutton in Italy (1.3 kg. per head and per annum, in 1930-34) are not all representative of the importance of this form of meat in the dietary in Southern Italy and in Sardinia. According to the enquiries relating to food consumption among the workers of Lecce, Salerno and Sassari whence are obtained the figures of Table II, mutton accounted respectively for 20, 30 and 50 per cent. of the total of meat consumed.

If a rapid survey be taken of the other civilised peoples of the world and of the primitive races, habits of consumption will be noted which, in virtue of religious practices and of customs, differ essentially from Western habits in regard to the kind of meat consumed. The 240 millions of Moslems in the world, who inhabit especially the north of Africa, the South-west of Asia, India and the East Indian Archipelago, do not eat pork, since they regard the pig, as do the orthodox Jews, as an unclean animal. The nomad and semi-nomad Moslems inhabiting these parts of the world, consume mutton and goat's flesh, and it is only among the farming populations established in India and in the Archipelago that beef is principally consumed. For the more than 240 millions of Hindus in India the pig is also taboo and so are cattle, which are the object of religious veneration. Although there is a larger number of head of cattle in India than in any other country--the estimate is about 160 millions—cattle are never killed for food, and they are employed only as draught animals and as milk yielders, so that they are allowed to live on such food as is available till the time of the natural death. With the Hindus, the meat eaten is mainly mutton or goat's flesh. Although a Buddhist is forbidden to kill, this commandment is observed with varying degrees of strictness among the different nations and sects belonging to this religion, and in addition, the majority of Buddhists may eat meat of animals killed by other persons. This explains the fact than among the 300 millions of the followers of Buddha in China, Korea, Japan, Tibet, in Mongolia, in Indochina—the principal areas of expansion of this religion—all the kinds of meat already mentioned are eaten, although in very small quantities as shown above. Among the three principal kinds of meat, that most largely eaten in Japan and Burma seems to be beef, while in Southern China, Siam and Indo-China it is pork, and in Northern China, Tibet and Mongolia mutton. In conclusion among these few examples of the influence exercised by religion and custom over the character of the food consumption, it may be mentioned that with the Sudanese and the Bantus, who together occupy most of the southern two thirds of the African continent, the modest ration of meat usually consists of poultry or venison With the Bantu people, even when there are great numbers of herds, cattle are never killed expressly for food, as they are regarded in the light of personal friends which one would shrink from killing or that are killed only as sacrifices on the occasion of births, marriages or deaths, and only on those occasions is beef eaten. The same ceremonial does not surround the slaughter of sheep and goats with the Bantu tribes, but as a rule they are not killed for ordinary household use, but are preferably kept as a sign of wealth or utilised for making presents to chiefs or to special friends (19).

Probability of an Increase in Meat Consumption in the Near Future.

From the survey just made it would appear that at the present time meat is to be considered, for at least three fourths of the population of the world, as an occasional factor only in the diet, and that, with a few rare and insignificant exceptions, meat is an important food only for some 200 to 300 million people in Europe as well as for the overseas countries peopled by emigrants from Europe. The question is now to be asked, whether an increase in the total consumption of meat in the world is to be anticipated in the near future and what is the probability that the production of meat will be adequate to this possible increase

That an increase in and even a considerable addition to this production is likely seems beyond doubt. It is certain, to mention only some of the more important factors tending to promote the production of meat, that there are to be expected in the future further important advances in the sphere of scientific breeding and feeding of domestic animals, in the control of the different diseases of these animals and especially in the science of plant selection and in other sciences connected with cultivation, advances which will render it practicable, even more than it has so far been, to transform crop products into meat and other foodstuffs of animal origin.

It is highly probable also that in a near future, provided at least that the general conditions of purchasing power among the masses do not become worse, a total increase in the demand for meat among the Western populations will have to be counted on, even if the consumption of the more well-to-do classes has already reached saturation point and will not continue to rise but may possibly fall. All the factors, which in the course of the XIXth century effected so large an increase in meat consumption, remain active. Every day the proportion of the urban and industrial section of the population, the chief meat consuming section, increases, as does also the proportion of the adult age groups consuming more meat; compulsory military service continues to accustom every year fresh classes of young men to a consumption of meat which, for the majority of them, was previously quite abnormal. In consequence of a propaganda far more effective than before, the meat industry and trade act in favour of an increase in the consumption of this food; throughout the population in the upper classes as in the masses, consumption of meat is constanty associated with success, power, prosperity, etc.

Since the majority of these factors, acting in favour of an increase in the consumption of meat, are gaining effect every day also among the three fourths of the world's population, among whom the consumption of meat is at present very small or even nil, it must be expected that this consumption will increase too among them in the future. Among the primitive races of Africa, as well as with the civilised nations of the Far East, numerous proofs are met with that a development in this sense is in course. We may recall, for example, the meat rations, often of European type, distributed to coloured troops or to workers in the large mining enterprises in Africa, or the large meat consumption, according to budget enquiries, among the negroes of South Africa, removed from their primitive conditions of life in their tribes to become town dwellers (20), or again the increasing production of meat in Japan and the highly significant fact that in Tokio to day there are to be found more than 3,000 butchers' stalls, where 15 years ago there were only three or four (21).

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BIBLIOGRAPHICAL NOTES

(1) Lichtenfelt Die Geschichte der Ernährung. Berlin 1913, p 203

(2) Agricultural Survey of Europe. U S Dept. of Agriculture Bull No 37, 1928, p. 115-16

(3) **Rubner, M** Wandlungen in der Volksernährung. Leipzig 1913, p 42

(4) **Mayerhofer**, E. et **Pirquet**, C.. Lexikon der Ernährungskunde. Wien, s. d., p. 424 et seq. **Bircher**, R.· Soldatenkost. Der Wendepunkt No. 4, 1936, p. 186 et seq.

(5) *Norway*. Husholdningsregnskap 1927-28. Utgitt av det Statistiske Centralbyrå. Norges Offisielle Statistikk VIII. 103. Oslo 1929. - *Sweden*. Levnadsvillkor och hushållsvanor i städer och industriorter omkring år 1933. Soc. Meddelanden, No. 12, 1934, p 787 et suiv. Stockholm 1934. — *Denmark*. Husholdningsregnskaber 1931. Udgivet av Det Statistiske Departement. Statistiske Meddelelser. 4. Raekke. 100. Bind. 1. Haefte. Copenhagen 1936. — *Finland*. Finlands officiella Statistik. Sociala Specialundersökninger. 14. Levnadskostnadsundersökning-

ar 1928. A. Bokföringsfamiljerna i städer och övriga bosättningscentra. Helsingfors 1936. -- *Great Britain.* The social survey of Merseyside. Edited by D. C. JONES. London 1934; E. P. CATHCART and A. M.T. MURRAY: An Inquiry into the diet of families in Cardiff and Reading (Medical Research Council. Spec. Rep. Series No. 165) London 1932; Do.: A dietary survey in terms of the actual foodstuffs consumed (Medical Research Council. Spec. Rep. Series No. 218). London 1936. — *Germany.* Die Lebenshaltung von 2000 Arbeiter-, Angestellten- und Beamtenhaushaltungen. Erhebung von Wirtschaftsrechnungen im Deutschen Reich vom Jahre 1927-28. Teil I. Gesamtergebnisse. Bearb. im Stat Reichsamt. Schriften zur Statistik des Deutschen Reichs. Nr 22-1, Berlin, 1932. - *Netherlands.* Bureau van Statistiek der Gemeente Amsterdam De uitgaven van 184 gezinnen gedurende de periode 1 Maart 1934-28 Februari 1935 Maandbericht van het Bureau van Statistiek der Gemeente Amsterdam, Feb et Mars, 1936. — *Belgium.* ARMAND JULIN: Résultats principaux d'une enquête sur les budgets d'ouvriers et d'employés en Belgique (1928 1929). Bulletin de l'Institut International de Statistique. Tome XXVIII, 2ème livraison, p 516 559, The Hague, 1935. - *Austria* "Haushaltstatistik." Wirtschaftsstatistiches Jahrbuch 1931-32, p. 344-349. Herausg von der Kammer fur Arbeiter u Angestellte in Wien, Vienna 1933.

Czechoslovakia. Verbrauch in Arbeiterfamilien im Jahre 1929-30. (Mitt. des Stat Staatsamtes der Tschechoslowakischen Republik, Année XIII, 1932, No. 158-159; Verbrauch in den Arbeiter-, Angestellten- und Beamtenfamilien im Jahre 1929-30 nach dem Einkommen im Durchschnitt auf eine Verbrauchseinheit. Année XV, 1934, No. 35 38). *Estonia* Budgets des familles ouvrières en 1925. Enquête budgétaire parmi les ouvriers de Tallinn et Narva. Tallinn, s d. — *Poland* Budgets des familles ouvrières Résultats de l'enquête effectuée à Varsovie, à Lodz, dans le bassin de Dabrowa et en Haute Silésie 1928, 1929 Statistique de la Pologne. Publiée par l'Office central de Statistique de la République Polonaise Tome XL, Fascicule 2 Warsaw 1933. - *Bulgaria* Annuaire Statistique du Royaume de Bulgarie, 1931 Sofia 1931, p 346-361. — *Italy* NICEFORO, A e GALEOTTI, G Primi risultati dell'inchiesta alimentare condotta in varie provincie d'Italia. Nota preventiva Risultati globali indicanti la razione quotidiana di alimenti, di principî nutritivi e di calorie per le varie categorie econonomico-professionali, in alcune delle provincie esaminate (Bolzano, Lecce, Salerno e Sassari). Quaderni della Nutrizione, Vol I, 1934-35, p 1-48; Cav PINNA W.. Inchieste statistiche sul regime alimentare di 11 famiglie di artigiani e 10 famiglie agiate, nella città di Cagliari. Quaderni della Nutrizione, Vol II, 1935, p 1-60, p. 100-164; G. GALEOTTI: Primi risultati dell'inchiesta alimentare condotta in varie provincie d'Italia. Seconda nota preventiva. Risultati globali indicanti la razione quotidiana di alimenti, di principî nutritivi e di calorie per le varie categorie economico-professionali nella provincia di Milano Quaderni della Nutrizione, Vol. III, N. 1-2, marzo 1936, p 1 31. - *United-States.* Int Lab. Office Studies and Reports. Series N (Statistics), No. 17. Second Revised Edition. A Contribution to the Study of International Comparisons of Living. An Enquiry into the Cost of Living of Certain Groups of Workers in Detroit (U S. A) and fourteen European Towns. Genevra 1932 *Mexico* Recent Family Budget Enquiries: Recent Family Budget Enquiries in Latin America, Int Lab. Rev. Vol. XXXIII, No 2, Fev. 1936, p. 283-85 et Vol. XXXIII, No. 5, May 1936, p. 739-742. - *Argentina.* Costo de la Vida. Presupuestos familiares. Precios de Artículos de primera necessidad. Indices del costo de la vida. Ministerio del Interior. Departamento nacional del Trabajo. División de Estadística. Serie C, No. 1.

Investigaciones especiales. Buenos Aires 1935. — *Palestine*. I. J. **KLIGLER** and A. **GEIGER**, etc.: An Inquiry into the Diets of various Sections of the Urban and Rural Population of Palestine. "Palestine and the Near East", Vol. VI, Nos. 21-22, Tel-Aviv, 1931, p 389-418. - *China*. L. K. **TAO**: Livelihood in Peking. An Analysis of the Budgets of Sixty Families (Social Research Dept. China Foundation for the Promotion of Education and Culture), Peking, 1928; **SIMON YANG** et L. K. **TAO**. A Study of the Standard of Living of working Families in Shanghai (Social Research Publications. Monograph No. III. Institute of Social Research). Peiping 1931. - *Japan*. Récentes enquêtes sur les budgets familiaux: Les enquêtes japonaises de 1926 à 1934. Rev. Int. du Travail, Vol. XXXII, No. 5, Nov. 1935, p. 705-22. — *India*. Labour Office, Gov. of Bombay. Report on an Enquiry into Working Class Budgets in Bombay. Bombay, 1923. - - *French Indo-China*. M. F. **LEURANCE**: Note sur deux indices du coût de la vie pour les indigènes à Hanoï (Bulletin économique de l'Indochine, N° 163, Nouvelle Série, 20e année, Nov.-Déc. 1923), Hanoï 1924 --- *Burma*. J. J. **BENNISON**: Report of an Enquiry into the Standard and Cost of Living of the Working Classes in Rangoon. Rangoon 1928.

(6) **BOCHOW**, E: Die Fleischversorgung der europäischen Industriestaaten. Rostock 1930, p 17.

(7) **BUREAU INTERNATIONAL DU TRAVAIL**: L'alimentation des travailleurs et la politique sociale. Geneva 1936, p 44.

(8) **HINTZE** K.: Geographie und Geschichte der Ernährung. Leipzig 1934, p. 205

(9) **ORR** J. B. and **GILKS** J L.. Studies of Nutrition: The Physique and health of two African tribes. Medical Research Council. Special Report Series No. 155. London 1931, p. 29.

(10) **HALL**, A. D.: The improvement of native agriculture in relation to population and public health. London 1936, p 81, **ORDE-BROWN**, G. St. J : J.: The African labourer. London 1933, p. 94 et suiv ; "Africa", vol. IX, No. 2, 1936.

(11) **MC CARRISON**, R. Problems of Nutrition in India. Nutrition Abstracts and Reviews, Vol. 2, No. 1, 1932, p. 1 et seq.

(12) **ZIMMERMANN** C. C.: Siam Rural Economic Survey. Bangkok 1931, pp. 273 et sqq.

(13) **LEITCH**, J. N.: Dietetics in warm climates. London 1930, p. 142.

(14) Departement van Landbouw, Nijverhed en Handel. Mededeelingen van Het Central Kantor voor de Statistiek te Batavia Centrum. No. 88. Prizen, Index-Cijfers en Wisselkoersen op Java 1913-1929. Batavia Centrum 1931, p. 102-03.

(15) **TODA** S.: The actual consumption of food in Japan. Proceedings of the third Pan-Pacific Science Congress, Tokyo Oct. 30th-Nov. 11th, 1926, Vol. II, pp. 261 et sqq ; League of Nations. Health Organisation. The food of Japan by E. Ch. Grey, Geneva 1928, p. 19.

(16) Departement van Economische Zaken. Geld en Producten-Huishouding, Volksvoeding en- Gezondheid in Koetowinangoen. Buitenzorg 1934, p. 381.

(17) **LAMSON**, H. D.: Social Pathology of China. Shanghai 1935, p. 59.

(18) **TODA**, S: Op. cit., p. 2612.

(19) **HALL**, A. D.: Op. cit., p. 81.

(20) **HELLMANN**, E.: Urban native food in Johannesburg. Africa, vol. IX, No. 2, 1936, p. 277 et suiv.; **ORTENSTEIN**, A. J.: The Dietetics of natives employed on the Witwatersrand gold mines. Africa, vol. IX, No. 2, 1936, p. 220.

(21) Politiken (Copenhagen), 2 Feb. 1936.

LIVE STOCK INSURANCE IN GERMANY (*continued*)

SUMMARY: III Public live stock insurance — IV. The reinsurance of small local societies.

III. – PUBLIC LIVE STOCK INSURANCE.

In 1935 four public institutions might be noted as operating live stock insurance: the Bavarian Public Animal Insurance Institute, the Public Live Stock Insurance Institute of Thuringia, the *Niederschlesische Provincial Feuersocietät* and the *Oberschlesische Provincial Feuersocietät* (1).

(*A*) The Bavarian Public Animal Insurance Institute (*Bayrische Landes-Tierversicherungsanstalt*) (2) was founded in virtue of the Law of 11 May 1896 with the title of the Bavarian Institute of Live Stock Insurance (*Landes-Viehversicherungsanstalt*) and on the following bases:

(*a*) It is in the first place a public institution of mutual type the administration of which is vested in the Bavarian Chamber of Insurance;

(*b*) the object of this Institute is insurance against losses arising from the death or forced slaughter of cattle and goats, and against losses due to the fact that the meat of a slaughter beast has been officially declared either wholly or partially unfit for consumption by reason of a defect discovered after sale.

(*c*) This Institute is constituted by the local insurance societies joining it of their own accord, on condition of accepting the model rules established by the administration of the Institute;

(*d*) The local societies are founded on the principle of voluntary and mutual participation; their organisation and their relations with insured persons are governed by the model rules,

(*e*) the Institute undertakes the covering of half the losses for which compensation must be paid by the local societies in virtue of the model rules. These funds are supplied, in so far as other means are not available, by means of contributions paid in by all the local societies belonging to the Institute, in the proportion of the sums insured by them. The Institute thus acts as a reinsuring body for the local societies.

(*f*) to the Institute is assigned not only an annual State subsidy intended as a contribution to the payment of compensation claims each year, but also a sum which was paid on one occasion only by the State and earmarked for the reserve fund of the Institute.

The fundamental law of 1896 was amended several times. Only the more important modifications are noted here.

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(1) NEUMANNS JAHRBUCH DER PRIVATEN UND ÖFFENTLICH RECHTLICHEN VERSICHERUNG IM DEUTSCHEN REICH, 1936, p. XXX.

(2) FR. SEITZ: Die öffentliche Tierversicherung in Bayern in the *Vierteljahreshefte für genossenschaftliche Tierversicherung.*

In virtue of a law dated 6 July 1908, insurance was extended to all farm animals with the exception of horses, which, as will be seen, are insured separately.

By the law dated 2 November 1912 local societies were admitted to membership of the Institute on condition that they would accept the modifications permitted by the administration of the Institute.

The most important amendment made to this law relates to the payment of compensation for losses. Up to that time, the half of the compensation paid was at the charge of the local societies, while the other half was paid by the Institute The consequence of this strict method of division was that the local societies which gave less attention to the management of the insurance became a burden on the Institute and on the other better managed societies which often for that very reason were led to quit the Institute. In consequence, beginning from 1912, the Institute undertook the total amount of the losses, apart from dividing out at the end of the financial year the total of the compensation payments, the administration and other expenses between the local societies on the basis of the risks insured by each society and in conformity with the principles of division approved by the Committee representing the insured persons. As a rule, the basis of this division is the average over five years of the losses chargeable to each local society. In this way, the contributions of the local societies are in general determined by the relation between the average of the compensation payments made during the last five years and the average of the sums insured over the same period

The result of these rules, which affect each society in proportion to the risks undertaken and by which contributions are levied on the local societies in varying degree according to the extent of the average losses insured by them, is to give each society a greater measure of influence on the establishment of their contributions. Local societies supervising the stock breeding carried out by their members and endeavouring so far as possible to avoid losses and to obtain good net returns may count on their contributions being reckoned at a low rate, the reverse is true for the societies which follow a different course of action.

In the exceptional cases in which losses occur that cannot in justice be debited to local societies, it is possible to establish a fair compensation by utilising the State subsidy.

Up to the time of the amending law little attention had been paid to the utilisation of the meat, but from that time very special attention was given to the matter as the sums accruing from such utilisation are employed to the profit of each society.

The law in question also established that the contributions of members must in the future be calculated on the basis of the degree of risk of the various kinds of animals.

The contributions are collected by the methods employed for the collection of taxes.

On 11 October 1919 the rules of insurance of slaughter stock were modified and will be described later.

On 16 August 1923 the Government was empowered to amalgamate with the Bavarian Live Stock Insurance Institute (*Landes-Viehversicherungsanstalt*) the Bavarian Institute for Insurance of Horses; this was done on 1 November 1923, and the Institute took the title of the Bavarian Animal Insurance Institute (*Landes-Tierversicherungsanstalt*). At the same time the law on the insurance of horses was repealed, and the insurance of all the kinds of animals was thenceforward regulated by the law on animal insurance (former law on insurance of live stock).

On 22 January 1924 the Chamber of Insurance was authorised to regulate the collection of contributions in a manner differing from that prescribed by the law. At the same time the Chamber was also authorised to declare that the outstanding contributions could be collected by distraint and to establish proceedings for forced collection similar to those prescribed for the collection of taxes in arrears.

The Bavarian Institute for Insurance of Horses referred to above was founded in virtue of the Law of 14 April 1900. This organisation had to be administered also by the Chamber of Insurance and in accordance with the principles regulating the Bavarian Institute for Live Stock Insurance, but separately. This institute was based on mutuality principles and on a local constitution. It also dealt with reinsurance which was operated by the societies taken as a whole. The purpose of these societies was to insure their members against losses due to the death of horses or their slaughter in consequence of permanent total disablement. At the beginning, the Institute assumed responsibility for half of the compensation payments while the other half was at the charge of the local societies During the years which followed its foundation, several amendments were made to the law, similar in scope with those relating to the Institute for Live Stock Insurance

As already stated, on 1 November 1923, the special Institute for Insurance of Horses was amalgamated with that for insurance of live stock, and the laws relating to it were repealed.

As regards insurance of slaughter stock, in accordance with the law of 11 May 1896 on the Bavarian Institute of Live Stock Insurance, the opportunity was offered to stock breeders only of insuring themselves against losses due to the declaration by the sanitary inspectors that the meat of slaughter cattle was unfit for human consumption. Later this law was found to be longer adequate.

On 16 June 1916, following on the introduction of the compulsory organisation of the meat market (*Fleischzwangswirtschaft*), on which the sole purchaser had become the Bavarian Office for Meat Supply, the Bavarian Federation of Slaughter Stock Insurance (*Bayrischer Schlachtversicherungsverband*) was founded, attached to the Bavarian Live Stock Insurance Institute.

When in 1919 the meat supply was reorganised, insurance of slaughter stock was also placed under the same legal regulations. By the law of 1 October 1919, to the law on live stock insurance there was added an article by which the administration of the Institute is empowered, for special insurance requirements, to establish general conditions of insurance independently of the rules established by the law on live stock insurance. At the same time the Ministry of Internal Affairs was empowered to introduce compulsory insurance of slaughter stock, which was done by an Order of 24 September 1920.

In amendment of the law of 1919 which confined this insurance to butchers only, the law of 1920 extended the obligation to stock owners and also to dealers in slaughter stock.

In addition, there was linked with the Bavarian Animal Insurance Institute also the Bavarian Federation for Animal Insurance, the object of which was insurance against live stock mortality of those stock owners who were unable to insure with any local insurance society.

The insurance against live stock mortality introduced from 1 November 1913 and the insurance against mortality of horses dating from 4 April 1916 differ very little from the same insurance as operated by the local insurance societies. It is for this reason that the rules of these societies are essentially similar to those of the Federation.

The activity of this institution is not confined to animal mortality insurance and is extended to other branches of insurance falling outside the scope of this article.

It may be of interest to examine the Law of 7 December 1933 which summarises the essential organisation of the Bavarian Animal Insurance Institute.

This Institute is constituted as a public body corporate. It forms part, with other institutions, of the Bavarian Chamber of Insurance which administers separately the different organisations belonging to it, and represents them in legal and extra-legal proceedings.

The object of this Institute, which is based on the principle of mutuality, is insurance against mortality of animals, and also the insurance of slaughter animals.

The insurance is operated by the local societies affiliated to the Institute and by the Bavarian Animal Insurance Federation which is linked with the Institute. The policy holders are the members of the affiliated societies. These societies and the Federation are also public corporate bodies, and are based on the principles of mutuality and liberty of action.

Their organisation and their relations with the insured persons are regulated by the rules of the Bavarian Animal Insurance Institute. The administrative area of the local societies is determined by the Chamber of Insurance.

Slaughter stock insurance applies to losses arising from the death of the animal intended for slaughter or from the official declaration at the time of the inspection of animals slaughtered for meat, when the meat is wholly or partially unfit for human consumption, or even when it is so fit under certain conditions or when it has lost some part of its value. All cattle, pigs, goats and sheep intended for slaughter which are subject to the health inspection in virtue of the law of the Reich of 15 January 1900, are covered by the reinsurance of slaughter stock. Animals not included are only porkers less than 50 lb. in weight and sheep and goats under three months. Declaration is obligatory for the butcher, and optional only for the owner of the animal.

For each individual case penalties can be imposed by the Chamber of Insurance, up to ten times the amount of the unpaid insurance contributions, in the case of non-observance of the obligation to take out insurance, and up to three times the same amount if it is a case of non-observance of the regulations for carrying out the law.

The Bavarian Animal Insurance Institute receives each year from the State a subsidy the total of which is fixed by budget and which is especially assigned to insurance against live stock mortality.

Control of the public insurance institutions attached to the Chamber of Insurance is exercised by the Bavarian Ministry of Internal Affairs.

The other provisions relating to the Institute of Animal Insurance as well as to the other institutions attached to the Chamber of Insurance arise out of the rules and general conditions of insurance which are drawn up and modified by the President of the Chamber of Insurance with the consent of the authority controlling the institutions in question.

Provisions are found in the rules relating to the formation of sections, the constitution and utilisation of reserve funds, investment and employment of the financial means of the Institutions belonging to the Chamber of Insurance, the right of insurance, the beginning, end, extent and total of the insurance, the objects that can be insured, fixation of losses, determination, payment and loss of compensation, declaration of claims, contributions and return of contributions.

The right of distraint belongs, within the limit of their competence, to the institutions attached to the Chamber of Insurance with the exception of the Bavarian Federation of Insurance. The distraining clause can be applied either to credit, contributions and other rights originating in the relation of insurance, or to interest payable on contributions in arrears and to the costs of collection. The procedure may be the same as is applied in the collection of taxes in arrears

In respect of live stock mortality insurance, apart from that effected against mortality of horses, at the end of the year 1934-35 there were 438 local societies with 17,153 members and 43,712 insured animals, and an assured capital of about 13,500,000 RM. (1).

There have been 2,153 claims with 281,393 net compensation payments. In the insurance against mortality of horses the following figures were registered 441 local societies, with 32,552 members, effected insurance for 63,373 horses for a capital of 46,516,000 RM.

The net compensation payments amounted to 1,747,532 RM. on 4,043 horses. The number of insured slaughter stock was 3,286,951. Complete losses were registered of 31,960 animals for a sum of 1,847,939 RM.; partial losses are not included in this figure.

The Bavarian Federation of Animal Insurance which effects, among other forms, insurance against animal mortality insured 2,346 animals in 778 local groups for a capital of 965,280 RM. and 846 animals in 23 institutions of public utility for a value of 338,740 RM. (2).

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(1) REPORT OF THE BAVARIAN PUBLIC INSTITUTE FOR ANIMAL INSURANCE for the year 1934-35.

(2) *Zeitschrift für genossenschaftliche Tierversicherung*, Heft 6, 2 Jahrgang, June 1930.

(*B*). In the Public Live Stock Insurance Institute of Thuringia, this state possess a public institute of live stock insurance which operates both insurance of slaughter stock and insurance against contagious stock diseases. Reinsurance of the local live stock insurance societies which was effected by the Institute for a number of years is at present in the hands of the Institute for the reinsurance of local live stock insurance societies at Berlin.

The Institute was founded in 1919 in virtue of an agreement made between the former divisions of Thuringia.

On 19 December 1922 this agreement was replaced by a law which lay down the principle that the object of this Institute is to be the general interest to the exclusion of any lucrative interest. Besides the branches already named, the Institute was empowered to extend its activity to other branches of insurance and to institutions the object of which is to combat contagious diseases of stock.

In respect of slaughter stock insurance, the law in question, which has introduced several modifications into the agreement referred to, laid down that compensation is only due in the case where losses relating to slaughter stock compulsorily insured are attributable to the rejection of the meat at the time of the obligatory inspection at the slaughterhouse. Losses occurring during the transport are not covered any more than the costs of slaughtering, inspection and accessory expenses.

Cattle the meat of which is intended to be used for consumption by the owner's family only are not brought under compulsory insurance but they can be insured.

Animals excluded from the ordinary insurance of slaughter cattle and in particular badly nourished although not obviously ailing animals, animals obviously ailing, but well nourished and not feverish are covered by a special form of insurance at higher rates of premium.

The declaration relative to animals insured compulsorily must be made at the place of slaughter. The declaration need be made at the place of sojourn of the animal only if the seller requires it, or for animals intended for export from Thuringia.

As regards the section of insurance against contagious diseases of stock, compensation is given in accordance with the law of 1922 in the case of:

(*a*) animals slaughtered by order of the sanitary authority or those which, after the issuing of the order, have succumbed to the disease which was the occasion of the order. The compensation amounts to the total of ordinary value of the animal if the conditions giving rise to the order have not been realised, and to three fourths of the ordinary value of the animal in the case of death, or even to four fifths in the case of contagious pulmonary disease, rabies, foot and mouth disease or tuberculosis, if the conditions which gave rise to the order have been realised;

(*b*) animals which have died after the declaration, if the conditions necessitating slaughter were present.

The compensation amounts to three fourths of the ordinary value for glanders and to four fifths for contagious pulmonary disease;

(*c*) animals in the case of which death may be presumed to have been the consequence of an inoculation ordered by the authority.

In this case the compensation is always equal to the whole ordinary value.

(*d*) animals which have died from anthrax, symptomatic anthrax, haemorrhagic septicaemia of cattle, rabies, etc., or even after the death of which the presence of one such disease was ascertained. Compensation amounts to four fifths of the ordinary value,

(*e*) cattle and goats which have died in consequence of foot and mouth disease; or even after the death of which the presence of one of these diseases has been ascertained. Compensation is reckoned at four fifths of the ordinary value;

(*f*) cattle, which, without order from the authority, have been slaughtered in consequence of tuberculosis or as suspected of suffering from the disease.

An essential condition for payment of compensation is that the cattle should have, for at least three months, belonged to a herd subject to the optional procedure, as recognised by the State, for control of tuberculosis.

In this case the compensation amounts to three fourths of the ordinary value, but cannot exceed 400 RM.

There are calculated in the compensation payments

(*a*) the sums payable by private insurers, *viz.*, three fourths of the total amount in the case of glanders and four fifths in the case of anthrax, symptomatic anthrax, haemorrhagic septicaemia of cattle, contagious pulmonary disease, rabies, foot and mouth disease and tuberculosis (slaughter ordered by the authority). In other cases the whole of the ordinary value is paid.

(*b*) the value of the parts of the slaughtered animal which remain at the disposal of the owner in accordance with the sanitary order.

In respect of the section of the Institute dealing with reinsurance, it should be noted that, according to the agreement mentioned above, the owners of animals for which insurance against live stock mortality is compulsory had to form local societies. In their turn these societies were expected to form a reinsurance federation. This obligatory form could not however be continued and was replaced by an optional reinsurance on a system of balancing the premiums.

A first organisation known as the Reinsurance Federation of the Thuringian Live Stock Insurance Institute remained in vigour up to the time of the inflation, after which it was dissolved and replaced by the Thuringian Federation of Local Live Stock Societies which was an institution designed to serve the general interest rather than to make profits. Its functions were to represent, in a general way and in face of the authorities, the small local societies attached to it, to give advice to these societies and to assist them, and, in order to develop the movement, to found new societies and especially to operate reinsurance.

As already stated, from 1 April 1935 the functions of this Federation were transferred to the Institute for Reinsurance of Local Live Stock Societies at Berlin; this latter Institute was founded by the Corporation of Agriculture of the Reich and some account of it will be given later.

During the financial years 1934 and 1935 the number of animals insured under the insurance of slaughter stock was 702,161 including: 50,234 cows, 18,087 bullocks, 40,229 young bullocks, 147,889 calves and 445,722 pigs, with a total of 1,127,722 RM. in contributions thus distributed: cattle 655,762 RM. calves 66,550 RM., pigs 405,375 RM.

In respect of losses there have been registered 5,709 total losses and 40,898 partial losses thus distributed:

cattle	2,532	total losses
	21,826	partial losses
calves	598	total losses
	1,193	partial losses
pigs	2,579	total losses
	17,879	partial losses

In respect of insurance against contagious diseases of stock, in the same financial years the funds available for the section amounted to 61,534 RM. for animals with undivided hoof and 378,116 RM. for cattle.

The losses registered included one animal with undivided hoof attacked with anthrax with 560 RM. paid in compensation and 19 cattle with 4,308 RM., 4 cattle attacked by symptomatic anthrax with 725 RM. paid in compensation and 70 cattle attacked by tuberculosis of the udder with 5,751 RM. paid in compensation.

Under the optional procedure for control of tuberculosis 2,254 animals have been slaughtered, carrying a total compensation of 238,697 RM. (1).

(*C* and *D*). — The other two public insurance institutions given in NEUMANNS JARHBUCH of 1936 are.

the *Niederschlesische Provinzial-Feuersozietat*, Breslau, founded in 1927 and originating in the division of the *Schlesische Feuersozietät*, founded in 1742, into the *Niederschlesische Provinzial Feuersozietät* at Breslau and the *Oberschlesische Provinzial Feuersozietat* at Ratisbon, in conseguence of the decree of the Prussian Ministry (*Staatministerium*, 31 December 1926).

This society in 1934 insured risks to total of 10,812,000 RM. for 409,322 premiums (apart from premiums transferred to reinsurance) and with 273,303 compensation payments;

the *Oberschlesische Provinzial Feuersozietät* at Ratisbon, founded in 1927, which has insured during 1934 a capital of 3,087,530 RM. (2).

IV. — THE REINSURANCE OF SMALL LOCAL SOCIETIES.

Reinsurance of live stock risks is operated in Germany by private societies and by federations. This latter form is by far the most important in relation to the small local insurance societies.

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(1) REPORT OF THE PUBLIC LIVE STOCK INSURANCE INSTITUTE OF THURINGIA, year 1934-35.

(2) NEUMANNS JAHRBUCH already quoted pp. 629 and 660.

This section of the article will be devoted to the federations existing in Germany in 1935.

The organisation in Bavaria of the reinsurance of the small local societies has already been mentioned in connection with public insurance.

The particulars in regard to the three other federative organisations of reinsurance are as follows (1).

(*A*) The Baden Insurance Federation (*Versicherungsverband*) which was founded in virtue of the law of 26 June 1890 limits reinsurance to the local societies for cattle insurance.

This Federation at first made itself responsible for three fourths of the losses and one fourth only was at the charges of the federated societies. At that time an exaggerated value was usually assigned to the insured animals and the very heavy claims fell on the insured owners as a whole. Owing to this and in spite of large State subsidies, very high contributions were required by the Federation.

The unsatisfactory utilisation of the carcases of the animals slaughtered added also to the cost of the insurance.

These drawbacks led to a reform. On 1 July 1898 it was decided by an amendment to the law that the losses should be in future shared equally between the societies and the Federation. With a view to reducing the charges to be met by the societies a limit of compensation was established beyond which the State intervened with assistance from its founds. This limit was fixed at 0.20 RM. for each 100 RM. of insured value. In the case where, in consequence of an epidemic, a local society had to pay extraordinary compensation, authority was given by the Ministry to reduce the federal contributions by one half. The sums required for payment of compensation by the local societies and their administrative costs are supplied by local contributions the amount of which varies according to the extent of the sums necessary. In consequence these contributions are subject to fluctuations of varying extent.

The administration expenses of the Federation are met by the State except for the share in the compensation taken by the local society on the basis of 0 20 RM. per cent. In other words, these costs are not borne by the local societies.

The compensation payments which have to be paid by the local societies amount to seven tenths of the ordinary value resulting from the survey in the case of animals that have died naturally and eight tenths in the case of slaughtered animals.

The various causes which lead to reduction or complete suppression of the compensation will not be discussed here.

Membership of the Federation is obligatory for all the societies, whether of old standing or new. Only the former type can be released from this obligation.

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(1) HEINZGEN W. Die Tierlebensversicherung durch kleiner Vereine. Leipzig u. Berlin, 1936. (*Die Praxis der Versicherungswirtschaft*, Heft 16)

Besides its function of reinsurance, the Federation has also to control the activity of the societies belonging to it, especially in respect of the valuation of the insured animals, the attention to be given to ailing or wounded animals and the utilisation of the animals and their carcases.

In all other respects membership of the Federation in no way limits the independence of the societies. In particular the administration of the Federation has no power to modify any compensation payments regularly recognised by the local societies nor to oppose the granting, the refusal or the reduction of payments as fixed by the societies. In consequence the owners of insured animals receive the compensation due without taking account of the reasons which might be opposed to the payment or to the valuation of the compensation by the administration of the Federation.

The interests of the Federation are safeguarded by the fact that it can refuse either wholly or in part the payments of the half of the compensation which is at the charge of the Federation.

(*B*) The Saxon Public Live Stock Insurance Institute (*Anstalt für staatliche Viehversicherung*) was founded in 1909 by order of the Ministry of Internal Affairs, according to the principle of free mutual insurance, it grants reinsurance to local societies for live stock insurance which in their rules and their policies observe at least a minimum of the requirements established by the Institute.

The reinsurance consists in half the compensation charges and half of the contributions to veterinary expenses. The sums in question are divided at the end of the financial year of the Institute between the local societies in proportion to the ratio between the losses incurred by each of them and the total sum insured by the local societies Costs of administration paid by the Institute are divided in proportion to the ratio between the sums insured by each society and the total insured by the local societies as a whole.

The Institute has control over the management of the business of the societies belonging to it without prejudice to the legislative provisions of the Reich relating to the control of the insurance societies

With the establishment of the Corporation of Agriculture of the Reich (*Reichsnährstand*) and the consequent winding up of a number of agricultural organisations, several reinsurance institutions disappeared.

(*C*) In the place of these the Corporation of Agriculture has formed a share company, the Institute for Reinsurance of Local Live Stock Insurance Societies (*Anstalt fur Rückversicherung ortlicher Tierversicherungsvereine*), which has absorbed the following reinsurance federations:

(*a*) Live Stock Insurance of the Agricultural Corporation (*Landesbauernschaft des Sachse-Anhalt*),

(*b*) the Animal Insurance Office of the Agricultural Corporation of East Prussia,

(*c*) the Federation of Live Stock Insurance of the Agricultural Corporation of the Rhine province,

(*d*) the Federation of the Local Live Stock Insurance Societies of the Agricultural Corporation of Electoral Hesse, and finally (*e*) the Thuringian Federation of Live Stock Insurance of which some account was given in connection with public insurance in Thuringia.

The reinsurance organisations in Saxony, Bavaria, and in the State of Baden, on the other hand, still continue to exist.

The Institute for Reinsurance, which by its rules is not conducted for profit but solely in the general interest, has headquarters in Berlin and was founded with a capital of 400,000 RM. belonging to the Reich Corporation of Agriculture (*Reichsnährstand*).

The expenses of this institution are paid in advance by the local societies reinsured under reserve of supplementary payments.

In the event of the dissolution of this Institute, its owned capital is to return to the *Reichsnährstand* which must utilise it in the interest of the local live stock insurance societies.

A choice between several methods of reinsurance is open to the societies or others seeking reinsurance. The general principle of the practice of reinsurance is the assumption of liability for two thirds of the sum required for the net compensation payments so far as it is not covered by the members' contributions.

In the case of reinsurance of local societies of insurance of horses and bulls also takes a share of the direct risk.

The benefits extend also to the waiving of the supplementary payment.

F. Arcoleo.

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

Dickson Harris. The Story of King Cotton Funk and Wagnalls Company, New York and London, 1937, p 309

[Without pretending to provide an exhaustive description and economic history of the world cotton industry the author of this interesting book has touched on many present day problems of cotton production, the trend of the cotton market, the competition between the various cotton-producing countries, the determination of prices, etc.

The author is concerned less with cotton as a commodity in world trade than with the cotton-planter himself as a social class in the community, with his family life and level of culture, with his financial resources, and such things as these, of which he appears to have a wide knowledge.

While being admirably suited to provide a general introductory description of the cotton economy this book can be profitably consulted by the cotton expert. It is moreover written in an attractive and witty style].

M. T.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography.

DE BREYCHA-VAUTHIER, A. C. La Société des Nations centre d'études et source d'informations Ce que contiennent ses publications. Paris, A Pedone, 1937. [6], 105 p

Sociology

ANDRUS, J R Rural reconstruction in Burma, Bombay, Oxford University Press, 1936 XX, 145 p.

BRUNNER, EDMUND DE SCHWEINITZ and I. LORGE Rural trends in depression years. a survey of village-centered agricultural communities 1930-1936. New York, Columbia University Press, 1937 XVI, 387 p

KUMARAPPA, I. C. Why the Village Movement ? (A plea for a new economic order in India) Rajahmundry, The Razan Electric Press, 1936

RAPER, A. F. Preface to peasantry A tale of two black belt counties. Chapel Hill, University of North Carolina Press, 1936. XIII, 423 p.

TSCHURTSCHENTHALER, P. Das Bauernleben im Pustertal Bolzano, Vogelweider, 1935. [8], 246, p

Economics

FOSSATI, E New Deal il nuovo ordine economico di F D. Roosevelt Padova, « Cedam », 1937. X, 296 p.

MORTARA, G. Prospettive economiche 16a ed. Milano, Università Bocconi, 1937. 407 p.

VON STRIGL, R. Einführung in die Grundlagen der Nationalökonomie. Wien, J. Springer, 1937 223 p

VERONESE G Contributo allo studio della vischiosità dei prezzi delle merci. Roma, « Commercio » 1937. 125 p (Confederazione fascista dei commercianti).

YOUGOSLAVIE. ZAVOD ZA UNAPREDJIVANJE SPOLJNE TRGOVINE. Die Wirtschaft Jougoslaviens Belgrad, Institut zur Förderung des Aussenhandels, 1937. 368 p.

Legislation

HENNING, P. Das Reichserbhofgesetz in der Praxis. (Eine Auslegung der wichtigsten Vorschriften des Gesetzes der Erbhofrechtsverordnung und Erbhofverfahrensordnung vom 21. Dezember 1936, in einfachen leichtverständlichen Worten und vielen Beispielen aus der Praxis.) 2. Aufl. Breslau, Selbstverlag, 1937. 64 p.

Rural Economics.

BANDA, C. Posibilidades agro-económicas del Ecuador. Quito, Impr. nacional, 1937.

COLE, W. E. and H. P. CROWE. Recent trends in rural planning. New York, Prentice-Hall, 1937. XV, 579 p.

Forschungen auf dem Gebiete der Wirtschaftswissenschaften des Landbaus. Festgabe für Ernst Laur. Brugg, Buchdruckerei Effingerhof, 1937. 672 p.

Hopkins, J. A. Farm records. Ames, Iowa, Collegiate Press, 1936. xx, 219 p.

Italie. Ministero dell'agricoltura e delle foreste. Notes sur l'agriculture talienne et sur l'organisation corporative agricole. Roma, [« Arte della stampa »], 1937. (« Hommage du Ministère de l'agriculture et des forêts d'Italie au 17^{e} Congrès international d'agriculture La Haye, 16-24, 1937 »).

Jonasson, O, E. Hoijer, B. Thure. Jordbruksatlas över Sverige. På uppdrag av Kungl. Lantbruksakademiens ekonomiska avdelning Stockholm, Lantbrukssällskapets Tidskriftsaktiebolag, 1937. 164 p.
[Agricultural Atlas of Sweden].

Kristensen, K. J. Det danske landbrug København, Martin, 1937 336 p.
[Agriculture in Denmark]

Mahoutdji, A E Die turkische Agrar- und Industriepolitik nach dem Kriege. Dresden, M Dittert, 1937 150 p

Manetti, C Contabilità agraria 2^{a} ed Catania, Casa Editrice « Etna », 1937, 125 p. (Rurali, colonne imperiali Manuale Battiato per l'avviamento agrario Volume 4^{o})

Schilling A Die Preisbildung der landwirtschaftlichen Erzeugnisse Prag, A. O. Czerny, 1937 240 p.

Struktur und Verfassung der ungarischen Landwirtschaft Hrsg. vom Internationalen Ausschuss der Ungarischen agrarwissenschaftlichen Gesellschaft zugleich als Ungarische Gruppe der Internationalen Konferenz für Agrarwissenschaft Budapest, Darányi Ignác agrártudományos társaság, 1937. 272 p (Veroffentlichung I der Ungarischen agrarwissenschaftlichen Gesellschaft « I Darányi »)

Thuringer Landesbauernschaft Betriebs-Ergebnisse 1935-36 Heft 23 der Arbeiten [Weimar], [1937] 25 p

Western farm economics association Proceedings of the Western Farm Economics Association 10th annual meeting, June 24, 25 and 26, 1937. University of Nevada Reno, Nevada. [1937]. 210 p.

Co-operation

American cooperation, 1937 A collection of papers comprising the thirteenth summer session of the American Institute of Cooperation at Iowa State college of agriculture and mechanic arts. June, 21 to 25, 1937. Washington, [1937] 694 p.

Centralverband der deutschen landw Genossenschaften Bohmens 41. Jahresbericht des Centralverbands der deutschen landw. Genossenschaften Bohmens über das Geschäftsjahr 1936 Prag-Weinberge, Deutsche agrarische Druckerei, [1937] 47 p.

Allgemeiner Verband für das landwirtschaftliche Genossenschaftwesen in Oesterreich. Bericht 1936 Wien, 1937. 95 p

TOTOMIANZ, V. Селскиятъ въпросъ и селската кооперация. Превелъ В. Стефановъ. София. Кооп. П-ца "Гутенбергъ", 1937. 128 p. (Общъ Съюзъ на българскитѣ кооперации. Кооперативна Библиотека, nº 3).
[Problems of peasantry and of agricultural co-operation].

VERBAND LANDWIRTSCHAFTLICHER GENOSSENSCHAFTEN VON BERN UND BENACHBARTER KANTONE. 48. Jahresbericht umfassend die Zeit vom 1. Juli 1936 bis 30. Juni 1937. Bern, Verbandsdruckerei, 1937. 37 p.

Financial Questions.

GARNIER, P L'impôt sur les bénéfices de l'exploitation agricole. Paris, Éditions du tableau fiscal et juridique, [1936]. 54 p.

MOSSNER, K. E. Das landwirtschaftliche Geschäft der Hypothekenbanken. Berlin, C. Heymann, 1937. [4], 54 p

Commerce

FREDERICK, J H. Agricultural markets. New York, Prentice-Hall, 1937 XIII, 289 p.

Industries

BAYERISCHES LANDES-ADRESSBUCH FÜR INDUSTRIE, HANDEL- UND GEWERBE 1937-38. 16. Ausgabe München, Adressbuchverlag der Industrie und Handelskammer, [1937]. 520+490 p.

Periodicals (1), (2), (3).

ACTIVIDADE económica de Angola, revista de estudos económicos, propaganda e informação. Repartição de gabinete do Govêrno geral. Secção de estudos económicos, Luanda, v. 1 (1936) - trim 20$00 [Containing Summaries of articles in French and English].

L'ACTUALITÉ économique, organe officiel de l'École des hautes études commerciales de Montréal et de l'Association des licenciés. Montréal, v. 1 (1936) - mens. $ 3.00 int $ 4 00 étr. [Containing the bibliography of books and summaries of articles from periodicals].

AGRICULTOR venezolano. Ministerio de agricultura y cria, Caracas, v. 1 (1936) - mens

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(1) Previous list Septembre 1937. To be continued March 1938.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); fasc. (copy); hebd. (weekly); int. (home price); irr. (irregular); mens. (monthly); nº (number); N. S (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

Boletín tabacalero. Dirección de agricultura. División de la producción tabacalera, Buenos Aires, nº 1 (1937) – mens. [nºs 1 and 2 under the title « Boletín mensual »]. [Mimeographed].

Bulletin de documentation coloniale. Ministère des Colonies. Service intercolonial d'information et de documentation, Paris, nº 80 (1935) – bimens. [nºs 80-112 (7 nov. 1935-8 avr. 1937) under the title « Bulletin hebdomadaire d'informations coloniales »; nºs 113-116 (29 avr.-22 juill. 1937) under the title « Bulletin d'informations coloniales »]

Bulletin des douanes de l'Iran [Administration générale des douanes], Téhéran, 1936 – mens. 1 Rial le nº.

Colombie Consejo administrativo de los FF. CC nacionales Revista del Consejo administrativo de los FF. CC. nacionales. Bogotá, nº 34 (1934) – mens.

Comisión nacional de granos y elevadores. *Boletín informativo*. Buenos Aires, v 1 (1937) – bimens.

Comisión nacional de granos y elevadores *Publicación*. Buenos Aires, nº 4 (1937) – irr

C I. B. Comité international du bois. Commission d'utilisation du bois. *Le bois et ses utilisations, revue internationale*. Vienne, nº 7 (1936) – 6-8 fois par an Sch 12.

C I B Comité international du bois *Informations économiques*. Nouvelle série, annexe au Bulletin mensuel statistique « Exportations européennes du bois » Vienne, nº 1/2 (avr 1937) – mens. Sch 1, le nº.

Cooperativa, revista del Ministerio de agricultura y comercio. Bogotá, nº 1 (1937) – irr.

Deutsche Landeskultur-Zeitung. Verband Deutscher Landeskulturgenossenschaften e V. Berlin, [Hiehold & Co], v 6 (1937) – mens. RM. 10.

Economic report Hungarian general creditbank, Budapest v. 11 (1937) – mens [Appeared also in French and German].

(Finansovaia gazeta) Финансовая газета: орган Наркомфина СССР [etc] Москва, [Типография центрального органа Народного комиссариата обороны СССР "Красная звезда"], nº 1 (16 nov. 1937) – tous les 2 jours. [Financial journal] [Formerly « Ekonomitcheskaia jizn].

Holz als Roh-und Werkstoff Berlin, Julius Springer, v 1 (1937) – mens RM. 24.

(Indoustriia) Индустрия; орган Наркомата тяжелой промышленности. [Москва], nº 1 (4786) (5 sept 1937) – Kop 10 le nº. [Formerly « Za indoustrializatsiou »]. [Industry: organ of the People's committee for heavy industry].

Informaciones estadísticas agropecuarias. Dirección de economía rural y estadística. Buenos Aires, Ministerio de agricultura de la nación, [Dirección de propaganda y publicaciones], v. 1 (1937) – irr.

I. I. D. Communicationes. Institut international de documentation, La Haye Nederlandsch instituut voor documentatie en registratuur, v. 1 (1934) – trim. Membres des associations adhérentes fl. 2,50, non-membres fl. 4. [Articles in French, German, or English. Summaries in three languages].

Landwirtschaftliches Genossenschaftsblatt für Niederösterreich. Wien [Niederösterreichische landwirtschaftliche Genossenschafts-Zentralkasse], v. 40 (1937) – mens.

MONTHLY trade and information bulletin. Standing board of economic development, Nairobi, Government printer, v. 2 (1937) – mens. 50 cts. le n°

NACHRA al iqtisâdiya al asbu 'iya. Ouizârat al tigâra oual sinâ 'a, Le Caire, Bureau des publications du Ministère des finances, v. 1 (1937) – hebd. 500 millièmes et port [Weekly economic bulletin].

NEWS for farmer cooperatives. [Farm credit administration, Washington, U. S. Government printing office], v. 3 n° 10 (1937) – mens.

NOTICIOSO Ministerio de agricultura de la nación, Buenos Aires, Dirección de propaganda y publicaciones, v. 2 (1937) – irr.

PÉROU. Superintendencia general de aduanas. Boletín de la Superintendencia general de aduanas. Callao, v. 15 (1937) – mens. $ 22,00. [Containing « Estadística mensual », published by Departamento de estadística general de aduanas, which up to n° 12,1936 appeared as an independent publication].

QUADERNI de « L'Assistenza sociale »; [Supplemento a « L'Assistenza sociale », Patronato nazionale per l'assistenza sociale, Roma], n° 4 (1936) – irr.

REVISTA de hacienda. Ministerio de hacienda, Caracas, v. 1 (1936) – trim. (EE. UU. de Venezuela).

SOCIAL research report. Farm security administration and Bureau of agricultural economics cooperating, Washington, U. S. Department of agriculture, n° 1 (1937) – irr.

SUPLEMENTO estadístico de la Revista economica Banco central de la Republica Argentina Oficina de investigaciones economicas, Buenos Aires, n° 1 (1937) – mens.

UNION SOVIÉTIQUE. Institout rastenievodstva Biblioteka Библиографические материалы. Ленинград, Институт растениеводства, n° 1 (1932) – irr. Prix var par fasc [Second title in English: Bibliographical contributions].

WIRTSCHAFTSBERICHT. Ungarische allgemeine Creditbank, Budapest v. 11 (1937) – mens [Appeared also in French and in English].

AGRICULTURAL STATISTICS

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report

WHEAT

The world wheat trade in 1936-37.

After the large shipments made in the first months of the year, particularly during the period January-March, an appreciable slackening was expected to occur in world wheat movements during the closing months of the year, and, in fact, the exports of April and May, the last month for which official figures are available, show substantial declines, particularly in the latter month when the volume of wheat shipments was smaller than that of the corresponding month of last year for the first time during this season. There seem to be grounds for believing that the light surpluses available in the exporting countries have induced some of the importing countries to cover their requirements in advance. The stocks at the ports of Rotterdam and Antwerp on 1 June were 5.5 million bushels as compared with 1.9 millions at this date last year. The first indications of the commercial movement in June, which was also on a smaller scale, seem to bear out the opinion that the importing countries have already partly provided for their import requirements during the months immediately preceding the opening of the new year. At all events, total exports, as we have already pointed out in the last Crop Report, will be larger than the estimate of 580 million bushels made in April and will be more likely to reach 610 millions.

World net exports of wheat (including flour in terms of wheat) *).

(Million bushels)

MONTHS	1936 37	1935 36	1934 35	1933 34	1932 33	1931 32	1930 31	1929 30
August	47	39	49	45	41	67	77	71
September	52	50	43	51	48	78	74	57
October	52	51	50	46	61	74	84	60
November	57	51	43	42	54	67	77	51
December	52	34	39	51	60	64	59	50
January	63	34	43	48	62	62	55	48
February	61	46	41	45	63	73	70	45
March	62	45	49	50	64	74	67	50
April	46	30	42	36	40	70	62	43
May	41	45	47	44	52	67	81	50
June		41	33	45	42	59	67	52
July		38	36	46	44	46	52	53
Total August May	*533*	*425*	*446*	*458*	*545*	*696*	*706*	*525*
Total Year	1) *580*	*504*	*515*	*549*	*631*	*801*	*825*	*630*

*) Aggregate net exports of the normal exporting countries (United States net imports not deducted)
1) Forecast April 1937 showing a slight underestimate

The exportable balance remaining in the various exporting countries on 1 June appears to be very small – barely 150 million bushels – but it is ample to meet the demand of the last two months of this year. It is clear, however,

Exportable supplies of wheat on 1 June 1937.

(Million bushels)

COUNTRIES	Year 1936–37			Year 1935 36		
	Total exportable supplies	Net exports from 1 August to 31 May	Remainder on 1 June	Total exportable supplies	Net exports from 1 August to 31 May	Remainder on 1 June
Canada	230	181	49	347	195	152
Argentina	185	152	33	104	61	43
Australia	130	81	49	133	90	43
U S S R	4	3	1	29	28	1
India	20	11	9	2	1	1
Danubian countries	90	87	3	33	25	8
North Africa, Turkey and others	20	18	2	25	23	2
Total	*679*	*533*	*146*	*673*	*423*	*250*

that the new year will open with negligible stocks and that, consequently, the entire import demand must be covered by the surpluses of the 1937 harvests.

The exportable balance remaining in Canada on 1 June is the lowest that can be remembered for very many years; it is barely a third of what it was at the same date last year. Argentina also shows a low total, after the heavy exports of the last few months; Australia alone still holds a considerable quantity slightly exceeding that on 1 June last year. The estimated balance of the Danubian countries seems too small and there is reason to believe that the exportable surplus for the whole year in this region has been under-estimated by many millions of bushels.

The net imports of European countries from August to May were 62 million bushels larger than those of the corresponding 10 months of last season. The imports of the United Kingdom and the Irish Free State do not even reach those of last season, the increase being attributable to the continental countries, particularly to Italy, whose net imports during the first 10 months of 1936-37 were 45 million bushels against 4 millions in 1935-36, to Greece (18 millions against 11 millions) and to Germany (12 millions against nil). Our forecast of 435 millions for the total European import requirements seems fairly accurate according to the trade movement of August to May.

*Net imports of wheat into Europe (including flour in terms of wheat) *).*

(Million bushels)

MONTHS	Year 1936-37			Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August	16	9	25	16	11	27	18	14	32
September	16	13	29	15	13	28	20	16	36
October	19	13	32	21	14	35	18	13	31
November	20	13	33	21	13	34	17	12	29
December	20	16	36	20	10	30	20	12	32
January	12	14	26	15	9	24	12	10	22
February	21	16	37	14	7	21	16	10	26
March	21	22	43	20	8	28	20	11	31
April	15	24	39	18	9	27	17	11	28
May	17	32	49	20	13	33	22	10	32
June	.	...		21	12	33	18	10	28
July	.	...		19	12	31	19	12	31
Total August May	*177*	4) *172*	4) *349*	*180*	*107*	*287*	*180*	*119*	*299*
Total Year .	1) *225*	1) *210*	1) *435*	*220*	2) *131*	2) *351*	*217*	3) *141*	3) *358*

*) Aggregate net imports of normal importing countries, after deduction of net exports, if any

1) Forecast April 1937 — 2) After deduction of net exports of 7 million bushels from Latvia, Portugal and Sweden — 3) After deduction of net exports of 21 million bushels from France, Estonia, Latvia and Sweden. — 4) After deduction of net exports of 7 million bushels from Czechoslovakia

Crop prospects for 1937.

The prospects for the new crops, based on information and forecasts that have reached the Institute up to 20 July, are as follows.

In Europe the wave of heat and drought that caused complaints during several days of the first fortnight of June was followed in the second fortnight by cooler temperature and rain in most parts. Consequently, the damage feared materialized only in some areas, particularly in the western basin of the Mediterranean, and on the whole was slight. The growth of the crops in most of the northern countries and the centre of the continent was generally assisted by the weather in June, and the crop reports of the beginning of July everywhere note a considerable improvement compared with the previous month, but the condition in some countries, particularly in the centre, was still below that of the same date last year. But it must be remembered that last year these countries had poor yields owing to very bad weather conditions in July and August.

The first fortnight of July, with moderate temperature and light scattered showers, was on the whole favourable for the ripening of the crops as well as for the work of cutting and in more advanced areas of gathering in the harvest. On the whole crop prospects since mid-June have somewhat improved and promise a production rather higher than last year's. We have already published last month a provisional estimate of the wheat harvest of 1,510 million bushels for the whole of Europe excluding the U. S. S. R., assigning 1,095 million bushels to the importing group of countries and 415 million to the exporting group (four Danubian countries, Poland and Lithuania). In view, however, of the subsequent favourable conditions and of the fact that yields proved in some countries to be better than expectations, we believe that the provisional estimate of last month should be increased by about 30 million bushels for the importing group of countries and 10 million for the exporting group. The production of the whole of Europe would rise from 1,510 to 1,550 million bushels and at these figures would be well above last year's and very near the average of the five preceding years (1,560 million bushels), which was a high average including the two record years of the continent.

European wheat production.

(Million bushels)

Years	Importing countries	Four Danube countries Poland and Lithuania	Total Europe
1937 (forecast)	*1,125*	*425*	*1,550*
1936	1,014	467	1,481
1935	1,190	386	1,576
1934	1,213	337	1,550
1933	1,290	544	1,745
1932	1,209	279	1,488
1931	974	463	1,437
1926-30 (average)	952	389	1,341

The aggregate production of European importing countries, though raised in this way, is still below that of the years 1932 to 1935, but it can be considered a satisfactory harvest, particularly compared with 1936 and the years before 1932. The good production of this group of countries must be ascribed especially to Italy, Greece and Switzerland, who have much larger harvests than last year's and who were among the largest purchasers of international wheat during the season which is now ending In the group of exporting countries the increase on the June estimates is almost entirely due to Romania, whose harvest seems to be much better than was expected a month ago, being now nearly equal to the very satisfactory outturn of 1936. The total outturn of this group of countries, though well below the record level of last vear, is appreciably larger than average. The exportable surplus of these countries appears to be considerable.

In the U. S S R , the favourable conditions which prevailed in June, when rainfall was well distributed and plentiful, continued during the first half of July The winter wheat and rye crops are large and the spring wheat gives good promise It is worth noting that information on the Soviet crop prospects, which in recent years, has been frequently contradictory, is this year unusually unanimous in indicating excellent prospects

In the United States, June was generally favourable for the wheat crops though there was drought damage in some areas and rust in others. For the country as a whole, the crop, as indicated by the estimates of the beginning of July, appears to be the largest harvested since 1931. The 880 million bushels indicated by the estimates will yield an exportable balance of about 100-120 million bushels after provision for internal requirements and replenishment of reserves In the first half of June, despite rust and some blasting, the crop situation suggested that no substantial change had occurred in the outlook as it was on at the beginning of the month. About 20 July temperatures were moderate and good rains fell in the spring wheat belt, assuring good development of the crops.

In Canada, however, the crop situation deteriorated seriously as a result of the drought which had prevailed throughout June and in the first half of July over the greater part of the Prairie Provinces. An estimate based on the crop condition figure at the end of June indicates a total wheat production of 224 million bushels, the lowest recorded since 1919. The persistence of the drought and the great heat of the first half of Julv further reduced the crop prospects. General and heavy rains fell in the middle of July but it appears that they were too late to save the crops in the areas most seriously affected by the drought. Part of the crop may yet draw some benefit from the delayed rainfall and there is some hope that the outturn will not fall far below the level indicated at the beginning of the month. In this event, Canada can only export quantities of about the some volume as those expected in the United States.

The total production of the Asiatic countries, excluding China, seems to be about equal to that of 1936. The slight increase recorded in India has been known for some time. A larger outturn is forecast in Manchukuo while

Cereal production.

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand bushels				
				WHEAT				
Bulgaria w)	38,095	33 466	30,479	63,991	55,775	50,797	114.7	126.0
Estonia w)	595	463	569	992	772	949	128.6	104.6
France	1) 157,631	153,562	190,015	1) 262,713	255,932	316,685	102.6	83 0
Greece	22,346	12,803	13,145	37,242	21,338	21,908	174.5	170.0
Hungary	41,786	52,674	45,891	69,646	87,788	76,483	79.3	91.1
Luxemburg	674	642	518	1,123	1,070	863	104.9	130.2
Netherlands	7,584	9,345	8,353	12,640	15,575	13,922	81,2	90 8
Romania	77,162	77,231	57,949	128,601	128,716	96,579	99.9	133.2
United Kingdom Scotland	2,576	2 128	1,931	4,293	3,547	3,218	121 1	133 4
Switzerland	3,697	2,682	2,978	6,162	4,470	4,963	137.9	124.2
Totals	*352,449*	*344.996*	*351,828*	*587,403*	*574,983*	*586,367*	*102.2*	*100 2*
Canada * w)	2) 9,360	7,487	7,667	2) 15,600	12,478	12,779	125.0	122.0
s)	2) 125,270	130,044	200,458	2) 208,780	216,740	334,097	96.3	62 5
United States w)	398,185	311,408	311,058	663,641	519,013	518,430	127.9	128.0
s)	131,188	64,469	96,724	218,646	107,448	161,206	203.5	135 6
Mexico	7,769	8,164	7,160	12,949	13,606	11,933	95 2	108.5
Totals	*671.772*	*521,572*	*623,067*	*1,119,616*	*869,285*	*1,038,445*	*128 8*	*107.8*
Chosen	6,625	4,857	5,471	11,041	8,095	9,118	136.4	121 1
India 3)	215,555	209,888	209,888	359,259	349,813	349,813	102.7	102 7
Totals	*222,180*	*214,745*	*215,359*	*370,300*	*357,908*	*358,931*	*103 5*	*103 2*
Algeria	20,618	17,864	19,674	34,362	29,773	32,789	115 4	104 8
Egypt	26,955	27,421	26,293	44,924	45,701	43 822	98 3	102.5
French Morocco	11,000	7,341	4) 17,554	18,000	12,234	4) 29,255	150.2	—
Tunisia	11,000	4,850	8,554	18,000	8,083	14,256	227.3	128 9
Totals	*69.573*	*57,476*	*72,075*	*115,286*	*95,791*	*120,122*	*121.1*	*96.6*
GRAND TOTALS	**1,315,974**	**1,138,789**	**1,262,329**	**2,192,605**	**1,897,967**	**2,103,865**	**115,6**	**104.3**
				RYE				
Bulgaria w)	5,168	4,854	4,708	9,229	8,668	8,408	106.5	109.8
Estonia	4,542	3,384	4,204	8,110	6,044	7,507	134.2	108.0
Greece	1,672	1,075	1,270	2,986	1,919	2,267	155.6	131.7
Hungary	14,279	15,744	15,978	25,497	28,115	28,532	90.7	89.4
Luxemburg	273	251	270	488	449	481	108.8	101.4
Netherlands	9,259	10,673	9,168	16,535	19,059	16,371	86.8	101.0
Romania	8,819	9,992	7,063	15,747	17,842	12,613	88.3	124.9
Switzerland	679	603	773	1,213	1,077	1,381	112.5	87.8
Totals	*44,691*	*46.576*	*43,434*	*79,805*	*83,173*	*77,560*	*96.0*	*102.9*
Canada w)	2) 1,870	1,704	2,846	2) 3,340	3,042	5,082	109 8	65.7
s)	2) 695	694	770	2) 1,310	1,239	1,375	105 8	95.3
United States	28,243	14,310	19,027	50,398	25,554	33,977	197.2	148.3
Totals	*30,788*	*16,708*	*22,643*	*55,048*	*29,835*	*40,438*	*184.5*	*136.1*
GRAND TOTALS	**75,479**	**63,284**	**66,077**	**134,853**	**113,008**	**117,998**	**119.3**	**114.3**

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand bushels				
BARLEY								
Bulgaria . . . . . *w*)	6,734	5,905	5,580	14,029	12,302	11,625	114.0	120.7
Greece	5,317	3,841	4,268	11,077	8,003	8,892	138.4	124.6
Hungary	10,714	14,514	13,832	22,321	30,238	28,818	73.8	77.5
Luxemburg	59	65	99	123	134	207	91.6	59.4
Netherlands	2,998	2,666	1,715	6,247	5,554	3,573	112.5	174.8
Switzerland	181	155	253	377	322	528	117.1	71.4
Totals . . .	*26,003*	*27,146*	*25,747*	*54,174*	*56,552*	*53,643*	*95.8*	*101.0*
Canada	2) 42,520	34,523	34,486	2) 88,600	71,922	71,846	123.2	123.3
United States	116,899	70,777	101,177	243,540	147,452	210,785	165.2	115.5
Totals . . .	*159,419*	*105,300*	*135,663*	*332,140*	*219,374*	*282,631*	*151.4*	*117.5*
Chosen	30,112	22,340	22,578	62,734	46,542	47,038	134.8	133.4
Algeria	12,487	14,150	16,486	26,015	29,480	34,347	88.2	75.7
Egypt	5,050	5,196	4,847	10,522	10,825	10,098	97.2	104.2
French Morocco . . .	16,755	33,651	4) 25,173	34,907	70,108	4) 52,444	49.8	—
Tunisia	4,409	1,653	5,027	9,186	3,445	10,472	266.7	87.7
Totals . . .	*38,701*	*54,650*	*51,533*	*80,630*	*113,858*	*107,361*	*70.8*	*75.1*
GRAND TOTALS . . .	**254,235**	**209,436**	**235,521**	**529,678**	**436,326**	**490,673**	**121.4**	**108.0**
OATS								
Greece	3,728	2,241	2,244	11,651	7,002	7,013	166.4	166.1
Hungary	5,003	5,776	6,053	15,635	18,049	18,914	86.6	82.7
Luxemburg	693	836	1,002	2,166	2,612	3,132	82.9	69.2
Netherlands	6,923	6,988	6,277	21,633	21,836	19,615	99.1	110.3
Switzerland	514	440	647	1,605	1,375	2,022	116.8	79.4
Totals . . .	*16,861*	*16,281*	*16,223*	*52,690*	*50,874*	*50,696*	*103.5*	*103.9*
Canada	2) 103,900	92,405	118,509	2) 324,680	288,764	370,342	112.4	87.7
United States	355,593	252,512	310,094	1,111,229	789,100	969,044	140.8	114.7
Totals . . .	*459,493*	*344,917*	*428,603*	*1,435,909*	*1,077,864*	*1,339,386*	*133.2*	*107.2*
Algeria	2,866	3,869	2,931	8,957	12,090	9,160	74.1	97.8
French Morocco . . .	926	425	4) 497	2,894	1,328	4) 1,552	218.0	—
Tunisia	441	...	481	1,378	...	1,502	...	91.7
Totals . . .	*4,233*	*4,625*	*3,909*	*13,229*	*14,451*	*12,214*	*91.5*	*108.3*
GRAND TOTALS . . .	**480,587**	**365,823**	**448,735**	**1,501,828**	**1,143,189**	**1,402,296**	**131.4**	**107.1**

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w) Winter crop. — **s) Spring crop.** — 1) Forecast on 15 June by the "Office national interprofessional du blé". — 2) Conjectural estimate based on crop condition on 1 July and longtime average yield. See also Crop Notes, p. 491. — 3) Second estimate of production. — 4) Incomplete figure.

Japan also expects a slight increase as a result of the expansion in the cultivated area. Syria and Palestine anticipate plentiful outturns as a result of the good spring rains. Turkey apparently expects a satisfactory harvest but it will be substantially below last year's record. In China, the crop will be mediocre and appreciably below the fair outturn of 1936.

Production in the three countries of French North Africa presents wide variations, and the total outturn will be mediocre and slightly below average. The yield in Tunisia is clearly plentiful and appreciably above average, that in Algeria is fair and also slightly above the average but the outturn in Morocco is poor, being 30 per cent. below the average. In all three countries, crops are distinctly above the low levels of 1936. Production in Egypt differs only slightly from last year's.

Wheat production in the northern hemisphere.

(million bushels)

Year	Europe	North America	Asia	Africa	Total
1937 (forecast)	*1,550*	*1,120*	*600*	*120*	*3,390*
1936	1,482	873	603	98	3,056
1935	1,576	923	577	115	3,191
1934	1,550	817	555	136	3,058
1933	1,745	840	572	111	3,277
1932	1,490	1,213	503	128	3,331
1931	1,437	1,277	572	116	3,402
1926-30 (average)	1,341	1,315	518	108	3,282

To sum up the wheat crop prospects in the northern hemisphere, it appears that the total outturn in 1937, owing mainly to the good results anticipated in Europe and the United States, will be particularly plentiful this year for it appears to surpass all previous crops with the exception of those of 1931 and 1928. These preliminary prospects are, of course, dependent on the course of the season up to harvest time, and, in particular, on the modifications which may occur in America, where the crops are still menaced by rust.

The prospect of good results in the chief importing countries, the return of the United States to its usual place among the exporting countries and the reduced possibilities in eastern markets at the present level of prices suggest that there will be an appreciable contraction in world wheat demand in 1937-1938. The world supply, despite the light Canadian crop and the reduced end-of-season stocks, is likely not to fall below but rather to exceed by a small margin, the total for last year if the present crop prospects in the northern hemisphere are realized and if the coming crops in the southern hemisphere are average.

As for the southern hemisphere, it is confirmed that sowings in some areas of Argentina have been somewhat delayed by the lack of rain but in the more important areas sowings were carried out in favourable conditions. Good, widespread rains were experienced in Australia, where there were previously complaints of drought, and sowings and germination were satisfactory on an area greater than last year's by about 10 per cent.

G. Capone.

Current information from various countries on wheat, rye, barley and oats.

Europe.

Germany· The first half of June was marked by generally hot weather and by the absence of rain while in the second half temperatures fell and there were excessive rains in 48.3 per cent. of the territory; in 14.3 per cent rains were fairly heavy and in 37.4 per cent average The condition of winter crops on 1 July was better than it was a month earlier Spring cereals, however, deteriorated owing to the lack of moisture in the first half of June.

Crop condition of spelt on 1 July 1937 was 2.4 against 2.6 in the preceding month and 2.4 on 1 July 1936.

Austria The first half of June was generally dry In the middle of June there was fairly heavy rain In the third decade of June the weather was variable

At the beginning of July the crop condition of cereals was above average for all types and varieties. The formation of grains is generally satisfactory with the exception of winter rye which has in places been hampered by dryness Although in some parts very good yields will be registered, the total production of winter rye will be below average The straw of the different varieties of cereals is rather short this year

Belgium The weather was fine and sunny at the end of June, rainy and cool from 10th to 20th fine and hot towards the end. In some areas, violent storms have damaged the crops The condition of winter cereals varies according to district. Wheats are in general thin and weed-infested Rye remains mediocre Winter barley is good, but rather severely attacked by black rust Oats are short and comparatively weak

The area cultivated to spelt this year is about 25,000 acres against 26,000 in 1936 and 31,000 on the average of the five years ending 1935, percentages, 96.9 and 80.1 The corresponding figures for meslin are follows 4,500 acres, 4,600 acres and 6,700 acres, percentages 97.9 and 66.6

Bulgaria The average monthly temperature in June was normal The rainfall and ample heat encouraged the ripening of cereals The harvesting of barley is finished throughout the entire country The harvest of rye has begun and in the south that of wheat also

Estonia The weather conditions of the past month were favourable for crops, a shortage of rain made itself felt in the eastern and southeastern areas of the country, while in the west and northwest the rainfall was quite satisfactory

In spite of the lack of rain in some parts of the country, the crop condition of winter cereals was better than a month ago

Irish Free State After the first week, which was rainy, the weather during June was warm and dry

Crops made good progress during the month, early sown wheat coming into ear. Oats and barley were sown later than usual and, though they made good progress, were not so well forward as usual. Condition was satisfactory

France: Conditions in June were fairly favourable The first half of the month was marked by great heat, and the second by a drop in temperature, severe storms and hailstorms causing local damage. The condition of cereals was satisfactory on the whole. Flowering of wheat occurred in good conditions and the earing of oats was satisfactory. The situation is not satisfactory, however, in fields that were waterlogged in the winter and spring.

The improvement in the condition of wheat noted at the end of May was maintained generally in June among wheat planted in good soil. This year, however, rust, blight, lodging, stem-rot and weeds are especially serious. In the south-west and south, drying winds have caused considerable scorching. Harvesting in these areas is about ten days earlier than last year The first threshings showed heavy, well filled grains. It was generally clear at 1 July that yields were distinctly better than last year. This suggested that production would exceed the estimate made by the National Interprofessional Wheat Office in the middle of June (See Cereal Table).

The crop condition of the other cereals on 1 July was appreciably better than that of 1 May, namely, 69 against 67 for rye, 69 against 65 for barley, 68 against 67 for oats and 69 against 68 for meslin. Despite many instances of lodging, the rye crop appears to be good. As for oats, the winter varieties were generally satisfactory at the end of June, despite serious weed infestation; the spring oats, however, having been sown in poor conditions, are short and overrun by weeds in most cases Winter barley (six-rowed barley) will yield a good outturn but the spring crop is unsatisfactory The first threshings of these cereals in the south yielded grain of excellent quality.

Subsequent to 1 July, when these condition figures were made, the weather continued fine, very hot and dry throughout the first decade. During the following week, weather was generally cloudy and cooler, thus favouring ripening but there were sharp showers in many places and lodging occurred in some areas These conditions do not appear to have made much change In the situation as it appeared on 1 July. Harvesting become general about 15 July in the north.

According to the estimate of 1 June, the area cultivated to meslin this year is about 172,100 acres against 170,700 on 1 June 1936 and 191,000 on the average of the five years ending 1935, percentages, 100.8 and 90.1.

Greece. According to the most recent estimate, the area cultivated to meslin this year is about 146,500 acres against 155,500 in 1936 and 133,900 on the average of the five years ending 1935, percentages, 94.2 and 109 4 The corresponding production is estimated at about 1,038,500 centals (1,790,600 short tons) against 866,900 (1,494,700 and 757,400 (1,305,900); percentages, 119.8 and 137.1.

Hungary: The weather during the fortnight between of 23 June and 6 July was variable but generally hot. The quantity of rainfall was above average over almost two-thirds of the area of the country. The weather has been on the whole favourable for the ripening of cereals.

On 6 July, the harvest of winter cereals was in progress, and in places finished. The grains are well developed on the whole.

The straw is of average length, with the exception of that of barley which is rather short.

Italy: In the first fortnight of June, the weather was not altogether good in north and central Italy; but it was fine in south Italy in both mainland and islands. Temperatures were very high, accompanied by sirocco winds and towards the end of the fortnight rain of a stormy nature fell, but not so much in the south and the islands; there were also fairly heavy hailstorms in some districts.

The wheat crop, especially wheat for late ripening, has suffered rather serious damage in places owing to lodging, blasting and rust.

Secondary winter cereals were on the whole in better condition than wheat and promised a fair harvest. In the second fortnight of June weather was variable and somewhat unfavourable for wheat. There were rains sometimes very heavy, and hailstorms in many Provinces, particularly in north and central Italy The harvest of wheat, though rather hindered in some districts by frequent rainfall, was progressing regularly; that of early varieties was finished and threshing had begun. In the upper hill and mountainous districts harvesting took place under normal conditions

For oats, rye and barley a good harvest is forecast.

In the first fortnight of July, the weather was fine with a high temperature and was suitable for harvesting Harvesting was almost finished and threshing was begun. In the mountains, the harvest was proceeding normally

By the first estimates, a production for the present season of over 176 million centals (204 million bushels) will be realised, which would be more than 30 per cent higher than last year and about 10 per cent more than the previous five-year average

For winter cereals also harvest results are quite satisfactory

Latvia In the first and second decades of June there was very little rainfall Rain fell only at the end of the month, and its distribution was very uneven There were on the whole many fine, sunny days The great heat and lack of rain were unfavourable for the growth of crops. According to the reports of agricultural correspondents, the crop condition of winter wheat was average in 37 0 per cent of the cases, above average in 46 2 per cent and below average in 16 8 per cent The corresponding figures for winter rye were 20 6 per cent, 74 3 per cent and 5 1 per cent, and of spring cereals 45 1 per cent, 19 2 per cent. and 35 7 per cent.

Lithuania June was marked by drought, for it rained only during the third decade All the crops suffered from lack of water The flowering of rye alone took place under excellent conditions, and a harvest above average is expected The crop condition of wheat remains below average. For all crops except rye, worse yields than last year are expected

Luxemburg The persistent drought, accompanied by rather low temperature during the greater part of June, had an unfavourable influence on the normal development of the crops.

The production of mixed grain is estimated this year at 72,800 centals (125,400 bushels) as against 70,000 (120,000) in 1936 and 112,900 (194,700) in the average of the five preceding years, percentages. 104.0 per cent. and 64 4 per cent

Netherlands Weather has been rather unfavourable Heavy rains had damaged soil structure so that sowings had to be made on wet ground Though the warm weather of June brought some improvement condition of most crops remained notably below normal Winter wheat is good to very good. Rust was reported in Zeeland. Spring wheat developed less satisfactorily Rye had on average a good appearance, though the ears are generally small, due to excessive washing away of fertilisers by the rains Winter barley is normal and summer barley only fairly good. Oats vary greatly with district

Poland The first fortnight of June was marked by excessive heat and lack of rainfall. The drought, which continued almost uninterrupted from the end of May, had an unfavourable effect on crops, especially summer crops, whose condition has consequently became much worse. 60 per cent of the communiqués of the crop reporters complain of a disastrously small amount of moisture in the fields, 34 per cent. report insufficient moisture and only 6 % state that there is enough.

The rain that fell in the second fortnight of June benefited above all spring cereals.

The middle of June was marked almost everywhere by a drop in temperatures and heat was recorded only in the last week of the month. Heavy rains were experienced over large areas and their coming, after a long dry period, had a good effect on the condition of crops, particularly, on that of the spring cereals which improved considerably

The appearance of cereals was better in the east and south and was almost good in some parts. In the centre and west, crop condition is below normal.

The crop condition of cereals was as follows:

Crop condition

Crops	1 July	15 June	1 June
Winter wheat	2.8	2.5	3.0
Winter rye	2.9	2.8	2.9
Spring wheat	2.8	2.6	3.0
Spring barley	2.7	2.5	3.0
Oats	2.7	2.4	3.0

The condition of spring cereals was better in the west where it was above average It was not as good in the centre and below average in the east and south.

Soil moisture, according to 37 per cent of the crop reporters, was inadequate for growth and, according to 35 per cent seriously inadequate The lack of moisture was most serious in Lublin and Bialystock and in the south-east During this period the storms and hail did not cause considerable damage, losses being local only

Portugal At the end of June, winter wheat had been harvested almost everywhere Yields are not great but the specific weight is higher than last year Having regard also to the increase in the cultivated area, a crop twice as large as that of last year may be expected Spring wheat suffered considerably from the drought and yields will be light.

Romania About the middle of July, when harvesting of cereals had been finished in Muntenia and Oltenia and when it was still being done in the Banat and in Moldavia, the crop prospects were estimated to be as follows Winter wheat sown in the autumn of 1936 on a larger area than that of the previous year showed a good yield for the country as a whole, although there were drought-affected areas where scorching occurred. Spring wheat, which is of slight importance in Romania, is very poor

Yields of winter wheat and spring wheat taken together, will vary between 9 and 15 centals (15 and 16 bushels) per acre and the specific weight between 60 and 64 lb per bushe,. The quality of the wheat is not as good as last year's

Winter barley does not cover a large area but will show very good yields. Spring barley, which generally forms the exportable surplus of Romania, is very poor. Oat production is also expected to be poor.

United Kingdom· The weather in England and Wales during the first part of June was generally fine and warm Towards the middle of the month a marked thundery tendency with sharp showers developed, with temperatures falling below average for the time of year. A return to drier and warmer weather however took place during the latter part of the month.

In Scotland rainfall during June was comparatively light in most districts. High winds from northerly directions were frequent during the latter part of the month when temperatures were lower than during the first two weeks.

The cereal crops made a considerable improvement during the month, although in some areas in England they are still thin and patchy owing to the adverse weather conditions of the winter and spring, while in Scotland, it was feared that, in several areas, owing to straw being longer than is usual at the end of June, the crops would not stand until ripened.

Early sown autumn wheat is generally healthy and vigorous but the later sowings and the spring wheat are variable. In most areas it is anticipated that the yield will be below average. The wheat crop in Scotland is expected to be about 20 per cent. larger than last year's. Barley made progress but is still backward and the yield per acre may be below average. Oats, although variable, are an improving crop but yields per acre are likely to fall short of the average.

The wheat area in Northern Ireland is likely to be smaller than last year At the end of May, the crop was somewhat variable but was making fair progress The areas under barley and oats are greater whan last year and both crops are doing well.

Switzerland: Generally speaking, cereal crops are looking well But it must be noted that the bad weather conditions that coincided with autumn and spring sowings have done some harm. Wheat and rye have not wintered well everywhere and the germination of the spring sowings was also poor. Consequently, the fields do not show everywhere a normal density, and here and there this seems likely to affect the size of the outturn. Autumn cereals flowered quickly and without any disturbance. Lodging and rust are rare, hail has not done any appreciable damage as yet. Autumn barley is mainly harvested already, and yields are satisfactory Rye fields are on the whole a little thin, but in compensation the formation and development of the grains are classed as good and very good. Autumn wheat is generally very good and, thanks to the good conditions of flowering, promises yields that may rightly be termed remarkable The drought of the first fortnight of June hampered up to a point the growth of spring cereals, but this delay has been mostly made up by the rain that fell in the second fortnight Spring wheat is everywhere very good Spring barley also looks well for the most part Oats are rather uneven because of lack of moisture during the first period of growth, but there are also areas where this cereal is reported as excellent

According to the most recent estimate, the area cultivated to spelt this year is about 30,000 acres against 29,300 in 1936 and 31,000 on the average of the five years ending 1935, percentages, 100.8 and 96 4. The corresponding production is estimated at about 672,400 centals (1,868,000 bushels) against 492,900 (1,369,000) and 640,000 (1,777,000), percentages, 136 4 and 105 1. The corresponding figures for meslin are as follows: Area 18,000 acres, 17,000 acres and 15,100 acres, percentages: 100.9 and 116.6. Production – 335,000 centals (578,000 bushels), 206,000 centals (510,000 bushels) and 316,000 centals (544,000 bushels); percentages· 113 3 and 106 2.

Czechoslovakia: The first half of June was very hot and dry, whereas the second half was comparatively cold and damper, with the exception of the eastern areas. In same districts, hail did considerable damage.

The crops, whose condition deteriorated alarmingly during the hot dry days of the first half of June, benefited from the moisture which came about 15 June and which lasted several days. The improvement, however, was uneven in character, according to the amount of rainfall, the nature and preparation of the soil, the stage of development of the different crops etc., so that the crop condition shows considerable differences between districts and even between localities. On the whole, some improvement occurred in winter cereals Rye has for the most part a good ear, but it is thin, so that it remains in all places the worst of the cereals. Spring cereals also benefited from the moisture. They had, however, suffered too much in the early stages of their development, so that they have remained short and rather weak even after the rain. Barley has mostly eared or is in process of earing with difficulty. There will be, on the whole, less straw compared with normal years. Also in some districts lodging has occurred among the cereal crops. In some areas winter barley has already been harvested. In the lower southern areas the cutting of rye has begun.

The condition of wheat and winter rye is better than in the last classification, but it is worse for both cereals than at the corresponding period of last year. It must however be remembered that last year unfavourable weather conditions during the period of ripening and harvesting of winter cereals caused the grain yields of these crops to be lighter than was forecast before the harvest.

There are adverse influences in many areas. Lately, cereals were attacked by *Cecidomyia destructor*. Among plant diseases, the commonest have been smut and rust.

Yugoslavia. Weather was variable in June; however, cereals ripened under good conditions, and the quality of the wheat is better this year than last. The rain which fell from time to time rather hampered the harvest, which at the end of June was in full swing.

The outturn of wheat, according to private estimates, is good but definitely below the very good harvest of last year, which was about 38 per cent above the five year average 1931-1935.

U. S. S. R. On 20 June the area under all spring crops was 223,814,000 acres, which is 97 per cent. of the plan, against 225,914,000 acres at the same date last year, which was 100 per cent. of the plan.

During June and the first decade of July, weather conditions were fair for cereals both as regards temperature and rainfall. The rainfall during this time was sufficient in almost the whole European zone and in the Asiatic areas, particularly Siberia.

At the end of the third decade of June, the situation of each cereal was as follows.

Winter rye both in Europe and in Asia promised a large harvest, and forecasts could not be altered to any extent, in the south, rye is ripening and in the centre its later growth is assured by the large amount of moisture already accumulated in the soil.

Winter wheat, in all the southern regions, was forming the grains and in most parts promised a good outturn. In the Volga area winter wheat was at the stage of formation of the ears, and the degree of moisture in the soil was enough to ensure the growth of the crop to full maturity.

In Turkistan, Uzbekistan, Tajikistan and Ajerbaijan, winter wheat was already ripe and the harvest was proceeding with fair weather conditions.

Spring wheat in the most important areas of this crop, that is to say, the Trans-volga region and the Ural Mountains, had weather which gave hopes of a good harvest. In the northeast of this region and in Siberia, frequent rain and hot weather assisted the growth of the crop.

Oats, in the centre of the European territory was forming the stems; in the north it was tillering, while in the south it was in flower. The crop promised well.

Weather conditions in the third decade of June and the first decade of July having been fair for cereals, the crop condition, noted at the beginning of the third decade of July is not likely to have deteriorated.

The harvest of cereals, begun at the end of June in the south, is adancing more and more rapidly. The area harvested rose from 895,000 acres on 1 July to 7,964,000 on 5 July and 18,286,000 on 10 July.

Although it is difficult to make forecasts at present, it is hoped to obtain a production that for all cereals together will be much higher than that of previous years. The five-year average of 1931-1935 for all cereals was about 1,863,000,000 centals.

The result of the crop now depends mainly on the weather under which harvesting takes place, and on the measures adopted to avoid the loss of grain which normally occurs during threshing and the transport of cereals from the fields.

America.

Argentina (Telegram of 21 July). The situation of the cereal sowings varies from region to region In the Provinces of Buenos Aires and Entre Rios the weather conditions were generally favourable but in Cordoba, Santa Fé and the Pampa field work has been delayed by the dry condition of the soil and sowings were hampered.

Canada. The last days of June brought no relief from the disastrous drought conditions which have prevailed in the main grain areas of the Prairie Provinces since the early part of the season The crops suffered severely and the condition figures at 30 June were considerably below those of the previous' month. The figure for spring wheat was 51 per cent as compared with 85 a month before. The most serious deterioration occurred in Southern and Central Saskatchewan and in Eastern Alberta Condition in Saskatchewan as a whole declined during the month from 78 to 34 and in Alberta from 93 to 63 This is the most serious deterioration ever to occur in the Prairie Provinces so early in the season. Manitoba, however, still showed approximately average conditions at the end of the month, while the small crop of winter wheat, being centred in the east, registered a moderate improvement

The condition figures at 30 June indicate that the total Canadian wheat crop of 1937 will be about 135 million centals (224 million bushels), and thus promises to be the smallest harvested since 1919 The final estimate for last year, when yields were also low, was 138 million centals (229 million bushels) The average outturn of the five years 1931 to 1935 was 208 million centals (347 million bushels) and that of the five years 1926-1930, 260 million centals (436 million bushels). This preliminary estimate of 134 million centals for 1937, being based on farmers' sowing intentions on 1 May and on the condition of the crop a good month before harvesting becomes general, can serve only as a rough indication of the probable outcome. To judge from the experience of former years, however, it is too late to expect the soaking rains which alone could enable the crops to make some recovery while in some districts the crops are now beyond hope. The figure is thus likely to prove an overestimate.

The conditions experienced after the compilation of the condition report were again dry, hot and very unfavourable in general Crop prospects declined further as the drought damaged area steadily extended. The greater part of Saskatchewan and much of Eastern and Northern Alberta has been affected by the arid conditions while parts of Western Manitoba were also beginning to feel the pinch of inadequate soil moisture supplies. Prospects in Manitoba continued good but there was danger of rust damage Crops were good also in Southwestern Alberta. Declines were reported in the northern sections of both Alberta and Saskatchewan and a fifty per cent. crop is the limit of expectations in the Peace River area Northeastern Saskatchewan still gives promise of fairly good yields but prospects are only fair to poor elsewhere while southern and central districts report a complete failure Prospects in Alberta are variable with some good crops southwest of Calgary but only a fair to poor outlook elsewhere.

Area and Crop Condition.

COUNTRIES		AREA 1937	AREA 1936	AREA Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Aver. = 100	CROP CONDITION (†) 1 VII 1937 a)	1 VII 1937 b)	1 VII 1937 c)	1 VI 1937 a)	1 VI 1937 b)	1 VI 1937 c)	1 VII 1936 a)	1 VII 1936 b)	1 VII 1936 c)
		Thousand acres													
WHEAT															
Germany	w)	4 579	4 727	4 794	96.9	95.5	2.8	—	—	2.9	—	—	2.3	—	—
	*s)		404	680			2.8		—	2.7	—	—	2.6	-	
*Austria	w)		592	529			2.5	—		2.7	—		2.1	—	—
	s)		37	24			2.4	—	—	2.6	—	—	2.3	—	-
Belgium		423	424	391	99.8	108.4	—	f)	—	)	—		—	f)	—
Bulgaria		2 861	2 822	3 023	101.4	94.6	—	—	—	-	—	—		—	—
*Estonia	)		44	46			107	—	—	103	—	—	—	—	97
France 1)	w)	12 772	12 536	12 573	101.9	101.6	—		—	—	—	—	—		—
Greece		2 104	2 109	1 755	99.7	119.9	—	—	—	—	—	—	—	—	—
Hungary		3 784	4 029	3 932	93.9	96.2	-	—		—	—	—	—	—	—
Italy	w)	12 647	12 426	12 154	101.8	104.1	-	—	—	—	—	—	—	—	—
	)	214	259	226	82.7	94.8	—	—		—	—	—		—	
Latvia	)	154	146	185	106.0	83.4	—	—		—	—	—		—	—
Lithuania		388	349	400	111.2	97.0	—	—	93	—	—	93	110	—	-
Luxemburg		45	45	34	100.0	131.2	2.1	—	—	2.2	—	—	2.1	—	—
*Norway			75	38			) 103	—	—						) 98
Netherlands	w)	275	321	261	85.6	105.1	—	—	—	—	—	) 65	) 73	—	—
		45	53	54	85.0	84.4	—	—		—	—	) 66	73		
Poland	w)	3 647	3 737	3 859	97.6	94.5	—		2.8	—	3.0		3.6		-
	)	585	568	475	102.9	123.2	—	—	2.8		3.0	—	3.4	—	
*Portugal			1 157	1 376			—	—	—	70	—	—	—		—
Romania	w)	8 011	7 720	7 211	103.8	111.1	—	—	-		—		—	—	
United Kingdom															
Scotland		100	94	76	106.7	132.0	)		—	—	)		—	—	—
*Sweden	w)			557			-	—	—	109				—	—
Switzerland		174	172	149	101.3	117.1	86	—	—	80			83	—	—
Czechoslovakia 3)	w)	2 023	2 206	2 094	91.7	96.6	2.8	—	—	2.9	—	-	2.6	—	—
	)	100	90	135	110.7	74.3	—	—	3.1	2.7	-	-	2.6	—	-
Yugoslavia	w)	5 342	5 368	5 174	99.5	103.3	—	—	—	—	—	—	—	—	—
Total Europe		*60 273*	*60 201*	*59 955*	*100.1*	*102.2*	—	—	—		-	—	—	—	—
U. S. S. R.	w)	4) 36 797	34 721	5) 31 200	106.0	117.9	—	-	—	—	—	—	—	—	-
	s)	4) 64 450	4) 60 547	59 174	106.4	108.9	—	—	—	—	—	—	-	—	—
Canada	w)	646	509	524	126.8	123.2	101	—	—	—	—	98	—	—	89
	s)	( ) 24 368	24 780	25 106	98.3	97.1	—	—	51	—	—	85	—	—	82
United States	w)	47 079	37 608	35 540	125.2	132.5	—	—	71.0	—	—	71.5	—	—	66.3
	s)	21 119	11 212	16 354	188.4	129.1	—	—	71.5	—	—	66.7	—	—	45.7
Total America		*93 211*	*74 109*	*77 524*	*125.8*	*120.2*	-	—	—	—	—	—	—	-	-
Chosen		839	818	800	102.6	104.9	—	—	—		—	—	—	—	—
India 7)		32 720	33 494	33 903	97.7	96.5	—	—	—	—		—	—	—	—
*Japan			1 686	1 440			—	f)	—	—	-	f) g)	—	f)	—
*Syria & Lebanon			1 316	1 253			—	—	—	-		95	—	—	—
Total Asia		*33 559*	*34 312*	*34 703*	*97.8*	*96.7*	—	—	—	—	—	—	—	—	—
Algeria		4 062	4 287	3 907	94.8	104.0	—	—	80	—	—	80	—	—	—
Egypt		1 421	1 464	1 549	97.1	91.8	111	—	—	110	—	—	110	—	—
Libya		111	80	46	137.7	241.6	—	—	—	—	—	—	—	—	—
French Morocco		2 743	3 194	8) 3 019	85.9	—	—	—	-	—	—	—	—	—	—
Total Africa		*8 337*	*9 025*	*8 521*	*92.4*	*97.8*	—	—	-	—	—	-	—	—	-
Australia		13 700	12 351	13 982	110.9	98.0	—	—	—	—	—	—	—	—	—
GRAND TOTAL	m)	**209,080**	**189,998**	**193,685**	**110.0**	**107.9**	—	—	—	—	—	-	-	—	—
	n)	**310,327**	**285,266**	**284,059**	**108.8**	**109.2**	—	-	—	—	—	-	—	—	-
RYE															
Germany	w)	10 404	10 971	10 896	94.8	95.5	—	3.0	-	-	—	3.1	2.4	—	-
	*s)		143	168			—	3.0	—	2.8	—	-	2.6	-	-
*Austria	w)		905	906			2.7	—	—	2.9	—	—	2.3	—	-
	s)		40	41			2.4	—	—	2.5	-	-	2.4	-	-

COUNTRIES		AREA					CROP CONDITION (†)								
		1937	1936	Average 1931 to 1935	% 1937		1 VII 1937			1 VI 1937			1 VII 1936		
		Thousand acres			1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Belgium		378	385	479	98.3	78.9		—	g)	—	—	g)	—	f)	—
Bulgaria		460	434	517	105.8	88.9	—	—	—	—	—	—	—	—	—
*Estonia			338	363			114	—	—	111	—	—	101	—	—
France 9)		1 639	1 635	1 712	100.3	95.8	—	—	—	—	—	—	—	—	—
Greece		156	160	178	97.2	87.4	—	—	—	—	—	—	—	—	—
Hungary		1 516	1 607	1 568	94.3	96.7	—	—	—	—	—	—	—	—	—
Latvia	w)	682	637	618	107.0	110.3	—	—	—	—	—	—	—	—	—
Lithuania	w)	1 269	1 207	1 222	105.2	103.9	117	—	—	116	—	—	110	—	—
Luxemburg		19	19	19	100.0	101.3	2.2	—	—	2.3	—	—	1.2	—	—
*Norway			15	15			—	—	1)96	—	—	—	—	—	1)94
Netherlands		557	554	449	100.6	124.0	—	—	—	—	—	)61	)72	—	—
Poland	w)	14 247	14 347	14 099	99.3	101.0	—	—	2.9	—	—	2.9	3.5	—	—
	s)	64	63	61	101.7	104.6	—	—	—	—	—	2.7	3.1	—	—
*Portugal			388	376			—	—	—	69	—	—	—	—	—
Roumania	w)	1 090	1 021	910	106.8	119.7	—	—	—	—	—	—	—	—	—
*Sweden	w)			527			—	—	—	102	—	—	—	—	—
Switzerland		37	38	42	97.2	89.1	97	—	—	72	—	—	84	—	—
Czechoslovakia	w)	2 389	2 466	2 472	96.9	96.6	—	—	3.2	—	—	3.5	2.8	—	—
	s)	48	44	59	108.9	81.1	—	—	—	—	—	—	—	—	—
Yugoslavia	w)	544	541	521	100.4	104.3	—	—	—	—	—	—	—	—	—
Total Europe		*35 499*	*36 129*	*35 822*	*98.2*	*99.1*	—		—	—	—	—	—	—	—
U.S.S.R.	w)	4) 56 486	57 426	5) 59 791	98.4	94.5	—	—	—	—	—	—	—	—	—
Canada	w)	413	457	555	90.3	74.5	—	—	49	—	—	69	—	—	68
	s)	) 182	178	157	102.4	115.6	—	—	48	—	—	83	—	—	79
United States		3 960	2 757	3 021	143.6	131.1	76.9	—	—	—	—	75.3	—	—	50.9
Total America		*4 555*	*3 392*	*3 733*	*134.3*	*122.0*	—	—	—	—	—	—	—	—	—
Algeria		4	4	3	97.6	114.4	—	—	—	—	—	80	—	—	—
GRAND TOTAL	m)	**40,058**	**39,525**	**39,558**	**101.3**	**101.3**	—	—	—	—	—	—	—	—	—
	n)	**96,544**	**96,951**	**99,349**	**99.6**	**97.2**	—	—	—	—	—	—	—	—	—
BARLEY															
Germany	w)	1 134	1 060	711	107.0	159.6	2.9	—	—	—	3.0	—	2.3	—	—
	* s)		2 955	3 248			2.7	—	—	2.5	—	—	2.5	—	—
*Austria	w)		21	19			2.5	—	—	2.7	—	—	2.2	—	—
	s)		373	396			2.6	—	—	2.6	—	—	2.1	—	—
Belgium		61	74	86	82.5	71.1	—	f)	—	e)	—	—	—	f)	—
Bulgaria		530	484	569	109.7	93.2	—	—	—	—	—	—	—	—	—
France)		1 756	1 790	1 795	98.1	97.8	—	—	—	—	—	—	—	—	—
Greece		522	534	536	97.8	97.4	—		—	—	—	—	—	—	—
Hungary		1 180	1 161	1 152	101.6	102.4	—	—	—	—	—	—	—	—	—
*Lithuania			529	501			103	—	—	110	—	—	110	—	—
Luxemburg		5	5	8	100.0	66.3	—	3.0	—	2.6	—	—	2.4	—	—
*Norway			149	143			103	—	—	—	—	—	—	100	—
Netherlands	w)	48	38	23	127.3	208.1	—	—	—	—	—	2)69	2)72	—	—
	s)	74	68	46	109.6	162.3	—	—	—	—	—	)63	—	—	2)69
Poland	w)	62	62	93	99.7	66.8	—	—	—	—	—	2.6	3.6	—	—
	s)	2 971	2,870	2 900	103.5	102.4	—	—	2.7	—	3.0	—	3.4	—	—
*Portugal			193	171			—	—	—	68	—	—	—	—	—
Roumania	w)	324	197	210	164.1	154.2	—	—		—	—	—	—	—	—
United Kingdom															
Scotland		75	72	78	103.8	96.3	—	—	—	e)	—	—	—	—	—
Switzerland		11	10	15	102.5	70.3	75	—	—	80	—	—	82	—	—
Czechoslovakia	w)	19	18	14	102.8	132.0	—	—	—	—	—	—	—	—	—
	s)	1 612	1 553	1 672	103.8	96.4	—	3.0	—	2.8	—	—	2.5	—	—
Yugoslavia	w)	605	597	614	101.3	98.6	—	—	—	—	—	—	—	—	—
Total Europe		*10 989*	*10 593*	*10 522*	*103.8*	*104.4*	—	—	—	—	—	—	—	—	—
U.S.S.R.	s)	4) 20 068	4) 20 150	17 917	99.6	112.0	—	—	—	—	—	—	—	—	—
Canada		6) 4 450	4 432	3 741	100.4	118.9	—	—	79	—	—	93	—	—	87
United States		11 166	8 322	10,596	134.2	105.4	—	—	79.3	—	—	79.7	—	—	60.3
Total America		*15 616*	*12 754*	*14 337*	*122.4*	*108.9*	—	—	—	—	—	—	—	—	—

** St 7 *Ingl*

COUNTRIES	Area 1937	Area 1936	Area Average 1931 to 1935	% 1937 1936 = 100	% 1937 Aver = 100	Crop condition (†) 1 VII 1937 a)	1 VII 1937 b)	1 VII 1937 c)	1 VI 1937 a)	1 VI 1937 b)	1 VI 1937 c)	1 VII 1936 a)	1 VII 1936 b)	1 VII 1936 c)
	Thousand acres													
Chosen	2 685	2 615	2 481	102 7	108 2	—	—	—	—	—	—	—	—	—
*Japan		1 918	1 979			—	f)	—	—	—	f) g)	—	—	f)
*Syria & Lebanon		739	766				—	—	—	—	95	—	—	—
—														
Algeria	2 951	3 120	3 240	94 6	91 1	—	—	60	—	—	70	—	—	—
Egypt	271	282	308	95 9	88 0	—	—	—	111	—	—	—	—	—
Libya	346	179	407	193 1	85 2	—	—	—	c)	—	—	—	—	—
French Morocco	4 201	4 104	8) 3 684	102 4		—			—	—	—	—	—	—
Total Africa	*7 769*	*7 685*	*7 639*	*101 1*	*101 7*	—	—	—	—	—	—	—	—	
GRAND TOTAL (m)	**37,059**	**33,647**	**34,979**	**110 1**	**105 9**	—	—	—	—	—		—	—	—
GRAND TOTAL (n)	**57,127**	**53,797**	**52,896**	**106 2**	**108 0**	—	—	—		—	—	—	—	—
OATS														
*Germany		6 850	7 796			2 9	—	—	2 7			2 7		—
*Austria		713	755			2 7	—	—	2 5	—	—	2 1		—
Belgium	521	534	648	97 6	80 5	—		c)	—	—	—	—	f)	
Bulgaria	269	258	299	104 2	90 1	—	—	—	—	—	—		f)	—
France)	7 908	8 217	8 312	96 2	95 1	—		—		—			—	—
Greece	373	378	336	98 8	110 9		—			—	—		—	
Hungary	572	529	560	108 7	102 3	—			—	—	—	—		—
*Lithuania		883	867			103	—		110	—	—	117		
Luxemburg	65	65	69	100 0	94 1	—	—	3 3	2 8	—	—	2 5	—	—
*Norway		210	231			102	—	—		—			—	98
Netherlands	358	333	339	107 4	105 7	—		—	—	—	3)65	3)73		
Poland	5 736	5 569	5 458	103 0	105 1	—	—	2 7	—	3 0	—	3 4		—
*Portugal		657	442			—	—		69	—		—		
*Romania		1 986	2 035			—	—	—	—					
United Kingdom														
Scotland	840	829	840	101 4	100 0	—		—	)	—	—	—		—
Switzerland	27	26	35	104 1	77 5	81	—	—	79	—	—	81		—
Czechoslovakia	1 937	1 895	1 989	102 3	97 4	—	—	3 1	2 8	—	—	2 7	—	—
Total Europe	*18 606*	*18 633*	*18,885*	*99 9*	*98 5*	—	—	—	—	—	—	—	—	—
U.S.S.R.	4) 43 193	5) 43 525	42 460	99 2	101 7	—	—	—	—	—	—	—	—	—
—														
Canada	6) 12 960	13 118	13 468	98 6	96 2	—	—	73	—	—	90	—	—	87
United States	35 933	33 213	37 553	108 2	95 7	83 8	—	—	82 3	—	—	—	—	60 6
Total America	*48 893*	*46 331*	*51 021*	*105 5*	*95 8*		—	—	—	—	—	—	—	—
*Syria & Lebanon		28	30			—	—	—	—	—	95	—	—	—
—														
Algeria	477	473	476	101 0	100 3	—	—	60	—	—	60	—	—	—
French Morocco	94	80	8) 66	116 8	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL (m)	**68,070**	**65,517**	**70,448**	**103 9**	**96 6**	—	—	—	—	—	—	—	—	—
GRAND TOTAL (n)	**111,263**	**109,042**	**119,908**	**102 0**	**98 5**	—	—	—	—	—	—	—	—	—

(†) See explanation of the various systems on page 177 — *) Countries not included in the totals — a) Above the average — b) Average — c) Below the average — d) Very good — e) Good — f) Average — g) Bad — h) Very bad — m) Not including U.S.S.R. — n) Including U.S.S.R. — u) Winter crop — s) Spring crop — 1) Acreage sown up to 1 January — 2) Middle of the month — 3) Including spelt — 4) Area provided for in the Plan — 5) Average of two years — 6) Area to be sown according to farmers' intentions on 1 May 1937 — 7) Fourth estimate — 8) Incomplete figure — 9) Acreage sown up to 1 May

(Telegram of 22 July): Rainfall was fairly general in the preceding week over the prairies and varied from light showers to torrential downpours of more than five inches Alberta was covered fairly well and the crop situation in eastern districts materially improved. Many Saskatchewan points received good rains which should relieve the feed situation in southern, central and western areas but the rain came too late to help the wheat crop which was already beyond aid. In northeastern areas, where practically all the remaining commercial crop is to be found, precipitation was light or lacking and some further declines are noted Manitoba shared in the rains but the dry areas in western parts were missed and crops are suffering; in other parts of the province crops are fair to good but rust remains a serious threat. The early sown crop is maturing rapidly and with a continuance of good weather may ripen before rust damage can affect the yield and quality Grasshoppers are numerous and active in different parts of the three provinces.

United States: June was mainly favourable for the grain crops. Towards the end of the month, the winter wheat crops ripened rapidly and good progress was made with harvesting Crops were somewhat affected by heat and rust. The spring wheat crops also made good progress but there was some evidence of rust.

The crop condition figures of all grain crops on 1 July were substantially better than those returned on 1 June Total wheat production, as indicated by the estimates of 1 July (see Tables), will be about 529,372,000 centals (882,287,000 bushels) This would be a larger outturn than any secured since 1931 and also above the average of the years 1926 to 1930. The production of rye, according to the July estimate, is nearly double that of last year and considerably above the average levels of previous years The yields of barley and oats are also plentiful.

The first days of July were mainly fair with moderate temperatures in the east and abnormal warmth in the west Conditions were mainly favourable but rain was needed in the Great Plains. The winter wheat harvest made rapid progress but heavy rust damage was reported in many parts Favourable weather was reported in the eastern parts of the spring wheat belt with little rust but crops were poor in some areas

According to a cable received on 15 July temperatures were abnormally high in the preceding week in central and northern parts of the country, moderate in the south and relatively low in the southwest There were scattered but beneficial rains and the moisture situation was generally better than it was a year ago. Harvesting and threshing of winter wheat advanced satisfactorily but considerable rust damage is reported The condition of spring wheat varied

(Telegram of 22 July) Temperatures during the preceding week were mostly moderate, except in the southeast and southwest, with widespread showers over the east and northwest where the rain was especially beneficial The harvesting of small grains advanced.

Uruguay: The rather dry and cool weather of May and the first fortnight of June was favourable for the sowing of wheat. Germination was uniform The lack of rain encouraged the activities of greenfly (*Toxoptera graminum*), but the rain that fell towards the end of June limited the damage. The crop condition of wheat is generally good.

Asia.

Cyprus: Heavy rain in the middle of May caused some damage to cereals However, the condition of the wheat and barley crops was satisfactory.

Japan. At the beginning of July weather conditions were rather unfavourable to winter wheat and winter barley; their crop condition, however, was normal.

Palestine It is estimated that the harvests of wheat and barley have given excellent results According to the forecasts made in May, the wheat crop exceeds 2 million centals (4 million bushels), as against 1,678,000 centals (2,796,000 bushels) in 1936 and an average of 1,598,000 centals (2,663,000 bushels) for the years 1931-1935. The barley crop is about 1,764,000 centals (3,674,000 bushels), as against 1,217,000 centals (2,535,000 bushels) in 1935 and an average of 1,045,000 centals (2,177,000 bushels). The quality is good.

Syria and Lebanon Weather conditions were good in May in Syria, Lebanon and Jebel ed Druz, very good in the province of Latakia, in Syria the average temperature and rainfall normal. No disease or insects were reported and on 1 June the situation was on the whole good.

Africa.

Algeria Weather in June was variable, with hot days at first, cooler later with showers and a rise in temperature at the end of the month. Thanks to the long delayed rain, cereal crops have improved and harvest forecasts have considerably increased At the end of June, harvesting and threshing were in progress, wheat is reported to be shrivelled in hot regions and everywhere grains are a little smutty and rusted

Crop results vary, especially in the case of hard wheat, from the east to the west of the territory. They are mediocre in Oran, average in Alger and good in Constantine. In Alger quality varies with the district being mediocre in some places with poorly developed grains among the soft wheat and weak grains in the hard wheat, in others it is good with a high density. Quality is generally perfect in Oran and high density was frequently reported. It is good also in Constantine; the hard wheat is well filled, though slightly affected by the heat, and the grain is strong; barley is well formed and very white but there are fairly frequent instances of rust

Egypt: Harvesting of the remaining areas in Lower and Middle Egypt was over about the middle of the month. Thrashing and storing are in progress, and the yield per acre is still estimated to be about 11 per cent. above the average.

Kenya: Heavy rains continued during the greater part of May but towards the end of the month dry spells were reported in some districts. Crop conditions were generally satisfactory

Libya Temperatures were normal in May. Some damage resulted from drought at the end of the month.

French Morocco. At the end of June, harvests were finished in south and east Morocco, and bore out the disastrous results forecast, in the centre the harvest of cereals ended with that of hard wheats. In the north, the harvest of soft wheats, a little delayed by the violent rainstorms of 7 and 8 June, was in full swing; the sheaves remaining in the fields have not suffered severely from the storms; hard wheats were ripening under good conditions; generally speaking, returns have been excellent in this region.

For the whole of Morocco, the latest harvest estimates made at the end of June confirm the forecasts of the previous mouth for hard wheats and barleys, and show a definite improvement for soft wheats; but harvests are still poor.

It is interesting to study the differences in yield under the different conditions of cultivation; wheat cultivated by Europeans on prepared fallow was 13 to 18 centals (22 to 30 bushels); wheat cultivated by Europeans on stubble was 9 to 13 centals (10 to 15 bushels); and wheat cultivated by natives was 4 to 6 centals (6 to 10 bushels); all these were under the some conditions of sun and climate. Native crops, often grown with primitive methods, not only give yields lower than European crops, but they are also much more sensitive to bad weather conditions, especially drought.

Tunisia: The crop estimates, published in the accompanying table, bear out the good forecasts made at the end of May when harvesting was in progress. It was ascertained at this period that yields were excellent in the north (Bizerta) and above average in quality, despite the rust which caused reductions in the wheat crop. The Florence-Aurore wheat in particular showed a high bushel weight. In the centre, (Tunis and Kef), sirocco and winds caused some serious shedding in the soft wheat crops but they stopped an attack of rust, and had no effect of the expected yields which continued excellent. In the south (Susa and Sfax) wheat and barley crops were very uneven, being mediocre in same places and average in the better watered places.

Union of South Africa: As a result of good rains during May, ploughing was carried on uninterruptedly in the south-western area and most farmers were able to complete their work. In the south coastal belt it was impossible to do any ploughing for winter cereals owing to the dry conditions. Little work was done also in the Karroo areas.

The Orange Free State experienced good rains during the month. Winter crop prospects improved but germination was not good.

In the Transvaal, cold nights with severe frost were being experienced in May but the days were warm and sunny. A good deal of wheat was sown, especially in the lowveld area but at the end of the month work was somewhat held up by a shortage of labour.

Area and production of hard wheat in certain countries.

COUNTRIES	AREA					PRODUCTION							
	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	% 1937: 1935 = 100	% 1937: Average = 100
	Thousand acres					Thousand centals			Thousand bushels				
Bulgaria . . .	18	...	...	...	...		.	.	...	...	..	...	...
United States	2,800	1,544	2,478	181 3	113.0	18,000	4,905	13,109	30,000	8,175	21,848	367 0	137 3
Algeria . .	3,028	3,233	2,993	93 7	101 2	13,823	11,190	13,748	23,038	18,650	22,914	123 5	100 5
French Morocco	2,026	1,977	2,264	102.5	89 5	6,600	5,093	12,018	11,000	8,488	20,030	129 9	55 0
Tunisia .	..	890	1,743	..	...	6,600	2,646	5 688	11,000	4,409	9,480	250 0	116 3

Oceania.

Australia (Telegram of 15 July). Sowings have been completed in Western Australia and South Australia; germination was even and regular and crop condition is good in the former State and excellent in the latter. The crops in New South

Wales made a good start and crop condition is now good but rains are necessary to ensure a satisfactory harvest Sowings in Victoria were delayed by the dry state of the land; condition is fair to good but damper weather is desirable.

The area expected to be harvested this year is about 13,700,000 acres, that is, about 11 per cent larger than last year and only 2 per cent. smaller than the average of the years 1931-32 to 1935-36.

Current information on maize.

Austria Following the rains of the middle of June, maize grew rapidly. Crops recovered from their delay and had been earthed up at the beginning of July.

France: In the first fortnight of June weather was hot and dry, while frequent and sharp showers fell in the second fortnight On 1 July, the crop condition in the system of the country was 68 as on 1 June In the first decade of July there was a considerable rise in temperature and dry weather, but stormy showers again fell in the following week

Hungary On 6 July, following rain, maize looked well Early varieties were in the first stage of flowering Late varieties have rather a short stalk

Italy Maize was in good condition in the middle of June. The frequent rains of the first half of June were a good influence and crop condition at mid-July was considered excellent

Portugal At the end of June crops in the north, where most of the maize is cultivated, were excellent on irrigated lands and in valleys, but those on non-irrigated lands were less satisfactory, a good, even production, however, is still expected from the latter For the country as a whole, a good outturn is anticipated

Romania The maize crop condition at the middle of July was officially described as follows Maize sowings were late everywhere In some northern districts, the crop did not grow normally owing to the drought, while in some parts of Muntenia it grew slowly and, at the end of May and in the first days of June, suffered from the drought which is a feature of the Romanian climate

In parts of Muntenia, Oltenia, the Banat and Transylvania, moisture was sufficient for normal growth

Condition at mid-July corresponded with the initial condition in the various regions. Good crops are expected in the west of Muntenia, in Oltenia, the Banat and in parts of Transylvania. The outturn will be very good in these areas if rains come in the second half of July In the remainder of the country, production will be fair or poor.

Czechoslovakia Maize, having had enough moisture, is on the whole in good condition.

Yugoslavia The heavy rain that fell in June has ensured that the soil will have enough moisture for a long time. At the end of July crops were looking very well.

U. S S R · During the second half of June and the first half of July the weather conditions in Ukraina and the North Caucasus were favourable for the normal growth of the crop

United States· According to the crop report of 1 July, the maize area for harvest this year is about 96,146,000 acres compared with a harvested area of 92,829,000 acres last year and an average harvested area of 102,079,000 acres in the five years 1931 to 1935. The 1937 acreage, though larger than those of the three previous years, is smaller than those of all other post-war years. Unit yields this year, how-

Maize.

COUNTRIES	Area					Crop condition †)								
	1937	1936	Average 1931 to 1935	% 1937		1-VII-1937			1-VI-1937			1-VII-1936		
	1,000 acres			1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria	..	158	158	...	...	2.3	—	—	2.7	—	—	2.7	—	—
Bulgaria	1,441	1,486	1,757	96.9	82.0	—	—	—	—	—	—	—	—	—
France 1)	840	796	812	105.4	103.4	69	—	—	68	—	—	—	—	—
Italy 2)	3,197	3,235	3,246	98.8	98.5	—	—	—	—	—	—	—	—	—
Portugal	...	1,057	1,014	..	..	—	—	—	68	—	—	68	—	—
Czechoslovakia 3)	238	212	4) 208	112.1	114.2	—	—	—	—	—	—	—	—	—
Canada	161	164	145	97.9	110.7	—	—	87	—	—	—	—	—	89
United States	5) 96,146	6) 92,829	6) 102,079	103.6	94.2	82.1	—	—	—	—	—	—	—	72.8
French Morocco	1,087	1,124	911	96.7	119.4	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 477 — *a*) Above the average — *b*) Average — *c*) Below the average – 1) Areas estimated on 1 June — 2) Spring maize (excluding summer maize, i e, "*cinquantino*") 3) Crop grown alone — 4) 1934 and 1935 only — 5) Area expected to be harvested — 6) Area harvested

ever, are expected to reach 26.7 bushels per acres as compared with 16.5 bushels in 1936 and an average of 25.4 bushels in the ten years 1923 to 1932. Total production will, therefore, compare favourably with the average levels of previous years. The July forecast is 1,440,237,000 centals (2,571,851,000 bushels) compared with a revised final estimate of 856,423,000 centals (1,529,327,000 bushels) in 1936 and a 1931-35 average of 1,307,102,000 centals (2,334,271,000 bushels).

Indo-China· The first crop gave lower than average yields owing to the drought in many provinces. Some parts of Tonkin, however, secured good yields.

The condition of the last crop was satisfactory at the end of May in Annam. In the extreme south, the area cultivated was increased from 40 to 60 per cent. Apart from white maize for local consumption, red maize grown for export has become very important in one province (Khanh-Hoà) particularly on land newly cultivated.

Sowings were nearly finished at the end of May in Cochin-China and Cambodia and growth was generally satisfactory, notwithstanding some damage caused by uneven distribution of rainfall, by the drought in Cochin-China, by floods in Cambodia and by rats in both States. The maize crop covers a greater area than last year in Chandoc in Cochin-China where the crop has extended from the banks of the Mekong and the Bassac to the centre of the interior plains. This increase results partly from the rise in maize prices which have become very remunerative and partly by the digging of canals which has done much to improve the low lying lands.

Java and Madura. The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area.

	1937 acres	1936 acres
Area harvested in April	88,200	129,500
Area harvested from 1 January to 30 April	2,588,200	2,855,800
Area of standing crops at the end of April	1,051,000	1,065,000

Syria and Lebanon: Crop condition was good in all parts on 1 June. The figures in the system of the Institute were 90 in Syria and 100 in Lebanon and Latakia.

Kenya: The conditions of the maize crop in May were, on the whole, satisfactory, but it was reported that warm sunny weather was required in certain areas where the moisture was excessive. An increase in the acreage planted was noticed.

French Morocco. In the north, the storms of 7 and 8 June brought moisture to spring crops at a time when the lack of it was beginning to be felt; the amount of water absorbed is enough to ensure a normal growth and field work is being actively undertaken. In the centre and still more in the south and east of Morocco, on the other hand, drought has gradually ruined hopes of a harvest in areas not irrigated, irrigated crops look very well and give promise of excellent yields, but their area is very small compared with that of unirrigated crops.

On the whole, the harvest of maize appears, by the estimate made at the end of June, certain to be definitely below average despite the extension of the area under cultivation. The production of sorghum and millet whose total area had been increased 40 per cent. to 352,100 acres, is estimated at only 1,168,000 centals (2,086,000 bushels), as against 1,750,000 centals (3,126,000 bushels) last year and 935,000 centals (1,669,000 bushels) for the average 1931-1935

Tunisia Maize and sorgho were in good condition of the end of May Crops were ripening and gave promise of excellent yields.

Current information on rice.

Bulgaria: According to the most recent estimate, the area cultivated to rice this year is about 14,000 acres against 15,200 acres in 1936 and an average of 18,200 acres in the five years ending 1935, percentages, 92.4 and 77.0 The crop condition of rice at the end of June was excellent.

Italy: The weather conditions of June and of the first half of July were favourable for rice, which is generally in excellent condition. Cleaning and transplantation were completed in the middle of July.

Portugal Rice, which is being grown over much larger areas, was looking well at the end of June: it is possible that this year's production will completely cover domestic requirements. The crop condition of rice on 1 June in the system of the country was 68, against 71 at the same date in 1936.

United States: The rice area for harvest in 1937 is estimated at 1,003,000 acres as compared with a harvested area of 935,000 acres in 1936 and an average of 857,000 acres in the five years 1931 to 1935, percentages, 107.3 and 117.0 Production is expected to be about 21,922,000 centals (48,716,000 bushels) compared with 21,075,000 centals (46,833,000 bushels) in 1936 and an average of 18,154,000 centals (40,343,000 bushels); percentages, 104.0 and 120.8.

Surinam: Ploughing for 1937 plantings was already begun in March in some districts.

Taiwan. The growth of rice is proceeding normally in all the cultivated areas.

India: Rain was general in the rice growing areas in the latter part of June and early in July. Rice sowing made progress and crop condition and prospects are fair.

Indo-China: In Tonkin, the harvest of fifth month rice was in full swing at the end of May, owing to the drought, yields were poor in many districts; but they were higher in several provinces and sometimes approached the 1936 figures (at Namh dinh and Phu by). In Annam, rice harvests of the first half-year were below average in almost every province, with a deficit as high in some cases as 40 and 50 per cent.; only in the extreme north (Tanh hoa) and some southern districts (north of Binh dinh) were yields average.

The preparation of the soil for the planting out of rice of the tenth month was also retarded in many places in Tonkin by the drought, the seed beds were ready at the end of May. In Annam, the preparation of seedlings for the harvests of the second half-year was made under quite good conditions in the north; the planting out of eighth month rice was beginning in some rice-fields of the centre and south of Annam, in the extreme south the condition of seedlings of the eighth month and of dry crops was satisfactory. In Cochin-China field work on seed-beds was in progress at the end of May and sowings had begun in some places, in the central provinces of Cochin-China, the crop season has been somewhat retarded by the irregularity and insufficiency of rain.

The estimates of the first rice crop in Tonkin and Annam are as follows:

	1937-38	1936-37	Average 1931-32 to 1935-36	% 1937-38 1936-37 = 100	% 1937-38 Average = 100
			Area (1,000 *acres*)		
Tonkin, 5th month crop	1,050	..	1,198	...	87.6
Annam 1st semester crop	799	1,006	943	79.4	84.8
			Production of paddy, in millions of pounds.		
Tonkin, 5th month crop	1,327	1,339	1,341	99.1	99.0
Annam, 1st semester crop	662	929	768	71.2	86.2

The area cultivated for the dry season crop in Cambodia in 1936-37 was 40,800 acres against 46,000 acres in 1935-36 and an average of 71,200 acres in the five years ending 1934-35. Percentages: 88.6 and 57.3.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area

	1937 acres	1936 acres
Area harvested in April —		
Wet paddy	1,172,300	1,095,400
Dry paddy	202,800	320,300
Area harvested from 1 January to 30 April —		
Wet paddy	2,012,000	1,817,700
Dry paddy	836,700	809,300
Area of standing crop at the end of April —		
Wet paddy	5,609,000	5,931,900
Dry paddy	116,600	161,100

Syria and Lebanon: Crop condition was good in Syria on 1 June (90 in the system of the Institute).

Egypt: Sowing of rice (sefi) was in active progress during June and approached its termination. Sowing of the few remaining areas, irrigation, drainage, transplanting, weeding and manuring are going on The water was adequate in the regions allowed to cultivate rice, except at some of the ends of canals where limited areas at the tail of Sharkawia canal and El Bahr El Sagheer in the province of Dakahlia, were slightly affected Crop condition is satisfactory

Current information on potatoes.

Potatoes

COUNTRIES		AREA 1937	AREA 1936	AREA Average 1931 to 1935	% 1937 1936 = 100	% 1937 Aver = 100	CROP CONDITION †) 1 VII 1937 a)	1 VII 1937 b)	1 VII 1937 c)	1-VI 1937 a)	1-VI 1937 b)	1-VI 1937 c)	1 VII 1936 a)	1 VII 1936 b)	1 VII 1936 c)
		1,000 acres													
Germany	s)		332	548			2 7	—	—	2 7	—	—	2 6	—	—
	t)	.	6,569	6,504			2 7	—	—	2 9	—	—	2 7	—	—
Austria			519	496			2 2			2 5	—	—	2 3	—	—
Belgium		392	396	413	99 2	95 1	—	()	—	—		—	—	—	
Bulgaria		43	35	35	121 2	122 7	—	—	—		—	—	—	—	—
Scotland		133	133	140	100 0	94 9	()	—	—	—	—	—	—	—	—
France		3 460	3 465	3 460	99 9	100 0	68	—	—	—	66	—	—	—	
Italy		962	964	1 004	99 8	95 8	—	—	—	—	—	—	—	—	
Lithuania			442	435			120	—			—	—	117	—	
Luxemburg		41	41	41	100 0	100 9	2 9	—	—	2 7	—		2 5	—	—
Norway			127	120			102	—			—	—	—	—	92
Netherlands	m)	275	274	318	100 2	86 3	—	—	—		—	[1]) 63	—		[1]) 68
	n)	61	48	66	127 2	93 5	—			[1]) 68	—	—		—	[1]) 64
Poland			7 150	6 821			3 2	—	—	3 1	—	—	3 4		—
Portugal				79			—	—		—			—	—	—
Switzerland		121	117	114	103 4	105 7	82	—	—	80	—	—	78	—	—
Czechoslovakia		1 912	1,876	1,824	101 9	104 8	2 5	—	—	2 7		—	2 6	—	—
Canada		501	496	543	100 9	92 2	—	—	94	—	—	—	—	—	95
United States		3 224	3 058	3 513	105 4	91 8	—	—	83 3		—		—	—	73 5
Algeria	s)	18	17	20	105 3	89 7	—		—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereal tables and note on page 477
a) Above the average — *b)* Average — *c)* Below the average — *m)* For consumption *n)* For factories
s) Early potatoes — *t)* Late potatoes — [1]) At the middle of the month

Austria After the rains of the middle of June potatoes grew vigorously Lifting of the early varieties was being carried out at the end of June The tubers are plentiful but rather small The main crop is thick and has begun to flower A good outturn is expected

Belgium Potatoes are irregular Many parts have had to be replanted The yields of early potatoes leave much to be desired Dressing and earthing up were done under good conditions

Bulgaria The crop condition of potatoes at the end of June was excellent

France The first fortnight of June was hot and dry, but violent hail and storm showers fell in the second fortnight On 1 July, the crop condition in the system of the country was 68 against 66 on 1 June, the growth was good but the crops were in many cases badly attacked by mildew and *Doryphora* The area attacked by this insect has extended this year, in southwestern districts a long way from the original centre of attack, but it is reported that treatments are much more frequently applied than in the past and notable progress has been made in this respect

The first decade of July was hot and dry, but in the following week the weather was fine with sharp showers

Hungary: On 6 July, the crop condition of potatoes was very good (above the average in most provinces). The tubers of the early varieties are growing well and are numerous.

Italy: Potatoes were in good condition generally at the beginning of July.

Luxemburg: The development of potatoes was impeded by the rather dry and cool weather of the greater part of June.

Netherlands: Development was irregular owing to the wetness of the soil. Some improvement followed the warm weather in June and condition rose to fairly good.

Poland: The rain that fell in the second fortnight of June assisted growth and towards the end of the month the crop condition of potatoes was on the whole average.

United Kingdom: Both early and main crops of potatoes in England and Wales, although backward, look very well. In districts where lifting has begun, the conditions of the crop is reported to be satisfactory and the yield up to average. The crop in Scotland was planted in generally good conditions of weather and soil and the crop was in good condition at the end of June.
The area in Northern Ireland will be greater despite a delay in planting. The early varieties were reported to be growing well at the end of May.

Switzerland: Weather conditions in June were extraordinarily good for potato crops. Everywhere are reports of vigorous or even luxuriant foliage. Spring potatoes harvested hitherto have been satisfactory.

According to the most recent estimate, the production of potatoes this year is be about 17,070,000 centals (20,450,000 bushels) against 12,521,000 (20,868,000) in 1936 and 16,580,000 (27,633,000) on the average of the five years ending 1935, percentages, 143.5 and 108.4.

Czechoslovakia: The good influence of the rain which fell in the second half of June is now apparent. Late crops have been mostly earthed up for the second time and are growing well, but need still more moisture.

United States: The first forecast of the potato crop places production at 242,537,000 centals (404,220,000 bushels) against 197,998,000 centals (329,997,000 bushels) in 1936 and an average of 227,441,000 centals (379,068,000 bushels) in the years 1931 to 1935, percentages 122.5 and 106.6.

Syria and Lebanon: The situation of crops was good on 1 June. Condition, in the system of the Institute, was 100 in Lebanon and 85 in Syria.

Algeria: Early or winter crops have shown good or average results according to locality. Spring potatoes have been planted under good conditions.

Tunisia: Production was considered to be rather mediocre at the end of May.

General review of the crop condition of sugar beets.

The improvement in the European sugar-beet situation which had begun during the first fortnight of June continued more strongly during the second fortnight. The late growth, due to the late sowing and the unfavourable conditions which prevailed during the first stage of development, had been largely made up at the end of June. In fact, the second fortnight of June, which was marked by rather heavy rainfall and a rather low temperature, brought humidity in many countries, without however hampering the field work which in general was in full swing, to the great benefit of the growth of the beets. The invasion of weeds was effectively checked, so that at the beginning of July the crop condition of sugar beets was much better than in the first days of June. All the European beet countries show a clear improvement on the previous situation. It is true that the crop condition is not uniformly satisfactory everywhere, but where it is not, it is necessary to look for the reason in the particularly unfavourable weather conditions under which the first stage of growth took place, as was the case in Poland, Romania and Czechoslovakia. Though the weather during the second fortnight of June was practically uniform throughout Europe, during the first decade of July it was rather variable, even in outlying areas. Nevertheless, hot and dry weather prevailed with showers here and there, so that it is difficult to say if crops have made progress or if they have remained stationary. At all events, the change cannot have been appreciable, and the good situation of sugar beets at the end of June does not seem to have undergone any appreciable changes during the following decade.

Acreage of sugar-beet.

COUNTRIES	1937 *)	1936	Average 1931 to 1935	% 1937	
	acres			1936 = 100	Average = 100
Germany	1) 1 109,200	1) 942,024	1) 832,718	118	133
Austria	100 000	90,200	111,320	110	89
Belgium	118,000	117 441	130,582	100	90
Bulgaria	25,000	11,535	22,536	214	110
Denmark	101,710	97 013	105,113	105	97
Spain	200,000	227,000	219,230	88	91
Irish Free State	59,000	61 491	27,328	96	217
Finland	7,900	7,861	6,415	101	123
France	540,000	556,000	597,159	97	90
Great Britain	350,000	357,283	326,846	97	106
Hungary	96,000	97,040	99 681	99	97
Italy	270 000	259,000	211,355	105	129
Latvia	35,000	28 700	27,602	121	125
Lithuania	20 000	17,000	11,382	114	174
Netherlands	103,287	105,654	102,963	98	100
Poland	358 000	300,069	293,790	119	122
Romania	82 500	72,232	76,839	114	107
Sweden	134 700	126 935	112,615	106	120
Switzerland	5 900	4,200	3,652	141	162
Czechoslovakia	414,562	381,260	392,016	109	106
Yugoslavia	37,000	63,766	71 118	58	52
Total Europe a)	*4,167,759*	*3 923 704*	*3,782,260*	*106*	*110*
U. S S. R.	2,943,000	3,020 560	3,237,622	97	91
Total Europe b)	*7,110 759*	*6 944,264*	*7,019,882*	*102*	*101*
Canada	1) 48,000	1) 56,100	1) 49,500	86	97
United States	778,000	776,000	798,619	100	97
Total North America	*826,000*	*832,100*	*848,119*	*99*	*97*
Japan	55,451	50,615	25,331	110	219
Turkey	57,000	55,800	46,788	102	121
Total Asia	*112 451*	*106,415*	*72,119*	*105*	*156*
TOTALS a)	**5,106,210**	**4,862,219**	**4,702,498**	**105**	**109**
TOTALS b)	**8,049,210**	**7,882,779**	**7,940,120**	**102**	**101**

*) Approximate data. — *a)* Not including U. S. S. R — *b)* Including U S. S. R. — 1) For sugar and drying.

Current information on sugar.

Sugar beet.

COUNTRIES	CROP CONDITION †)								
	1st July, 1937			1st June, 1937			1st July, 1936		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	2.7	—	—	2.7	—	—	2.6	—	—
Austria	2.7	—	—	2.8	—	—	2.1	—	—
Belgium	—	f)	—	—	—	—	e)	—	—
Scotland	—	f)	—	—	—	—	—	f)	—
France	—	67	—	—	—	60	—	—	—
Lithuania	103	—	—	—	—	—	110	—	—
Netherlands	—	—	—	—	1) 65	—	1) 73	—	—
Poland	—	—	—	—	—	1) 2.8	1) 3.2	—	—
Switzerland	84	—	—	80	—	—	79	—	—
Czechoslovakia	2.4	—	—	2.7	—	—	2.3	—	—
Canada	—	—	92	—	—	—	—	—	86
United States	—	—	84.2	—	—	—	—	—	80.9

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 477 — 1) At middle of the month

Austria At the end of June, only the early sown beet was in full leaf, the later crops being backward The wide differences in the development of the crops caused a serious delay in work

Bulgaria The crop condition of sugar-beet at the end of June was excellent.

France The first fortnight of June was hot and dry, but the rain that fell in the second half of the month assisted the beets The second dressing and singling were often late and this might have been much more damaging to the crops had the weather at the end of June allowed a more rapid growth of the plants On the whole, the situation greatly improved in the course of June and the crop condition in the system of the country was 67 on 1 July, against 60 on 1 June, it has thus nearly reached the level of the last ten years

The first decade of July was hot and dry, towards the end there were beginning to be complaints of lack of moisture The temperature dropped and storm showers fell during the following week

Hungary On 6 July, the roots of the sugar beet were growing very well. By this time the third hoeing had been finished. The crop condition was average or above average in most of the provinces.

Italy The sugar-beet crops were in good condition in June and generally favourable at mid-July

[*Netherlands:* Condition is fairly good but development is considerably behind normal

Poland. The rain that fell in the second fortnight of June improved the growth of the crop.

United Kingdom With the more favourable weather of June, sugar-beet made rapid growth and the condition of the plants is satisfactory

Czechoslovakia: The good influence of the rain which fell in the second half of June has become largely apparent. The sugar beet has been earthed up for the second time or is being earthed up. The beet is already covering most of the ground.

U. S. S. R.: The frequent heavy rainfalls of the second fortnight of June and the first fortnight of July in the most important districts under sugar beet assisted the growth of the crop.

Argentina: In June the work of harvesting the canes was in progress in all the centres of production of the country. In the province of Tucuman yields per acre were 550 centals (28 short tons) in Santa Fé 660 centals (33 short tons), in the province of Corrientes and Chaco, on the other hand, yields will be generally low.

Barbados By the middle of June good showers fell throughout the island, improving the crop condition.

Canada: The production of beet-sugar in 1936-37 was 1,725,400 centals (86,268 short tons) against 1,362,000 centals (68,100 short tons) in the previous year and an average of 1,293,600 centals (64,680 short tons); percentages, 126.7 and 133.4.

United States. The first estimate of the production of sugar-beet in 1937 is 179,040,000 centals (8,952,000 short tons) compared with 180,560,000 centals (9,028,000 short tons) last year and an average of 173,720,000 centals (8,686,000 short tons); percentages, 99.2 and 103.1.

British Guiana: Good rains fell in May, breaking the prolonged drought and benefiting the autumn sugar crop

Jamaica Cane grinding continued in May under favourable conditions.

Haiti: The total cane-sugar exports during the period October-May for the 1936-1937 season were 569,700 centals (28,480 short tons), as against 715,600 centals (35,780 short tons) exported during the corresponding period of 1935-36

St Lucia It was reported in May that the 1937 crop had been completed, the outturn of "first sugars" being 177,300 centals (8,860 short tons) as compared with 178,200 (8,900) last year. Percentage 99.5

Surinam The lowness of rainfall in February and March was unfavourable to growth of cane planted in good time. December and early January plantings were however, in good condition. Borers and froghopper caused some local damage but disease was not serious.

Trinidad Reaping of the 1937 cane crop continued in May under favourable conditions.

Taiwan. The crop condition of cane in new plantations is good and growth is proceeding under normal conditions.

India Rainfall was general in the sugar areas and the condition of the standing crops is fair.

Indo-China At the end of May, vegetation was good or fair in Tonkin, according to region. In Annam, the last harvests were mediocre in one province (Nghê-Tinh); the growth of standing crops was normal. Growth was also normal in Cochin-China at the end of May.

Netherlands Indies (Aneta): In the second half of June the weather was rather dry though it is as yet impossible to say anything regarding the issue of the east monsoon. In the last few days, however, rain fell over a large port of Java.

The drier weather favoured ripening. In several localities cane yields were disappointing in view of the fine stand which generally promised higher yields. From various parts yields were reported that are amongst the lowest.

Development of the young plants was in general satisfactory though here and there the effects of the preceding wet period were noticeable. Though the drier

Production of cane-sugar.

COUNTRIES	1936-37 1)	1935-36	Average 1930-31 to 1934-35	1936-37 1)	1935-36	Average 1930-31 to 1934-35	% 1936-37: 1935-36 = 100	% 1936-37: Average = 100
	Thousand centals			Short tons				
AMERICA.								
Antigua	672	476	387	33,600	23,811	19,327	141	174
Argentina	9,576	8.607	7,621	478,796	430,368	381,022	111	126
Barbados	2,750	2,895	2,133	138,000	144,737	106,633	95	129
Brazil	22,046	25,817	19,518	1,100,000	1,290,850	975,879	85	113
Cuba	67,491	57,982	56,306	3,374,490	2,900,000	2 815.256	116	120
Ecuador	408	406	439	20.400	20,300	21,943	101	93
United States (La.)	7,496	6,658	4,010	370,000	333,000	200 474	113	187
British Guiana	4,409	4,389	3.061	220,000	219,445	153,060	100	144
Jamaica	2,361	2,049	1,403	118,069	102,000	70,000	115	168
Martinique	1,102	1,101	1,023	60,000	55,040	51,146	100	108
Mexico	6,614	6.790	4,989	300,000	340,000	249,500	97	133
Peru	9,370	8.951	8,819	468,000	448,000	440.940	105	106
Puerto Rico	18,828	18,527	17,471	941,000	926,333	873,522	102	108
Dominican Republic	9 480	10,076	8,719	470,000	503,795	435,928	94	109
St Kitts	762	631	506	38.100	31 555	25 305	121	150
Trinidad	3,594	3,465	2,416	180,000	173,220	120,978	104	149
Venezuela	551	496	456	28,000	24,800	22,824	111	121
Total America	*167,510*	*159,316*	*139,277*	*8,334,455*	*7,967,254*	*6,963,737*	*105*	*120*
ASIA								
Taiwan	21,826	19,877	17,781	1,090,000	993,831	889,061	110	123
India 2)	150,461	132,340	98,202	7,522,963	6,616,893	4,910,030	114	153
Japan 3)	2,723	2,427	2,018	136,100	121,300	100,900	112	135
Java	31 091	13,060	34,550	1,554,544	653 000	1,727,486	238	90
Philippine Is 4)	27,778	24,471	23,579	1,390,000	1,220,000	1,178,937	114	118
Total Asia	*233,879*	*192,175*	*176,130*	*11,693,607*	*9,605,024*	*8,806,414*	*122*	*133*
AFRICA								
Egypt	3,044	2,903	3 220	152,200	145,100	161,020	105	94
Mauritius	6,621	6,184	4,729	331,000	309,000	236,400	107	140
Réunion	1,587	2,007	1,273	79,000	100,366	63,642	79	125
Union of South Africa	8.927	8,346	7,312	446,334	417,318	365,590	107	122
Total Africa	*20,179*	*19,440*	*16,534*	*1,008,534*	*971,784*	*826,652*	*104*	*122*
OCEANIA								
Australia	17,417	14,482	13,251	871,000	724,100	662,549	120	131
Hawaii	20,834	21,451	20,124	1,042 000	1,073,000	1,006,168	97	104
Fiji Is.	3,351	2,932	2,369	168,000	147,000	118,447	114	141
Total Oceania	*41,602*	*38,865*	*35,744*	*2,081,000*	*1,944,100*	*1,787,164*	*107*	*116*
TOTALS	**463,170**	**409,796**	**367,685**	**23,117.596**	**20,488,162**	**18,383,967**	**113**	**126**

1) Approximate data. — 2) Production of *gur* — 3) Production of sugar (refined and raw) and molasses. — 4) Production of sugar and *panocha*.

weather counteracted heavy weed growth there was still considerable damage from this cause There were many complaints of reduced labour capacity through disease and other causes

Infestation by stemborers is heavy on many estates this year and *glaglah*, gummosis and yellow stripe are also reported locally in the new planting

Egypt: Growth of the sugar cane is progressing satisfactorily, and, in some of the early cultivations of Upper Egypt, the plants began to form the internodes. Watering, hoeing and manuring are being carried out. Crop condition on 1 July was good.

Union of South Africa: In May, the sugar-cane condition averaged 10 per cent. below normal. The weather was very dry throughout the sugar belt. At no centre did the rainfall reach one inch and the cane is consequently becoming drought affected.

Current information on vines.

Germany: The hot weather of the first half of June stimulated flowering of well grown vines. Flowering in some places, however, was uneven owing to the heavy rain and hail which was experienced in mid-June. Moth is widespread and has done much damage in some places. The crop condition of vines at the beginning of July was about average.

Austria. Flowering occurred in good conditions at the end of June. Clusters were growing rapidly and are healthy. Crop condition was 2.1 on 1 July against 2.3 on 1 June and 1.8 on 1 July 1936.

Bulgaria: The coming harvest of table grapes is likely to be very good. Vines have escaped the attacks of cryptogamic diseases and are very promising.

France: In the first fortnight of June weather was hot and dry, the temperature was lower in the second fortnight and violent rain and hail storms occurred in many places. The condition and development of the grapes were both good; mildew has so far done only a little harm in the large producing provinces, but disease and *Cochylis* have done very serious damage in many parts. On 1 July the condition of the vines was 71 in the system of the country, against 70 on 1 June, provided there are no serious cryptogamic attacks, the crop condition gives hopes of a normal yield, despite the unsatisfactory formation of grapes in the spring. The weather conditions of the first decade of July seem also to have been favourable to vines, except in southern large producing areas.

In the following table we give the area of vineyards in 1 June, together with the similar figures of previous years: –

	1937	1936	Average 1931-1935	% 1937	
			(1 000 acres)	1936 = 100	Average = 100
Bearing area.					
Vines for wine grapes	3,742	3,809	3,820	98.2	97.9
Vines for table grapes	81	78	68	103.5	118.1
Total	*3,823*	*3,887*	*3,888*	*98,3*	*98,3*
Non-bearing area	114	125	163	94.3	71.3
TOTAL AREA	*3,937*	*4,012*	*4,551*	*98,1*	*97,2*

Hungary: The hot weather of the beginning of July favoured the growth of the vines. Grape formation is satisfactory.

Italy: In the first fortnight of June weather conditions were quite fair for vines which were growing well and were practically free from attacks of *Peronospora.* In some areas there were cases of shedding more particularly in some southern provinces (Tarentum and Syracuse). In the second half of June vines were in good condition everywhere but had suffered considerably from hail in several provinces and attacks of *Peronospora* particularly in Piedmont, Emilia, Marche, Umbria and South Italy. There was also some oïdium damage, particularly in Marche and Apulia, and shedding in some parts of Sicily.

Luxemburg: The generally low temperature of the second fortnight of June was unfavourable for the flowering of vines. Fruiting is, on the whole, poor; the appearance of *Cochylis* has been noted. The crop condition of vines expressed in the system of the country was 3.6 on 1 July against 2.5 on 1 June 1937 and 2.4 on 1 July 1936.

Portugal Flowering on the whole was very satisfactory and the grapes formed under fair conditions. At the end of May mildew had not yet been reported anywhere and attacks of oïdium had only been very rare and not serious If weather conditions remain good, an outturn much above that of 1936 is expected. The crop condition on 1 June was 72, as against 67 on 1 May and 58 on 1 June 1936.

Switzerland· The fine weather of May and June has been extraordinarily favourable for the growth of vines. They flowered under good conditions As against this, the formation of grapes has not been very great, so that on the whole only a poor to average yield may be expected The prospects as regards quality are very satisfactory. In some parts worms have done damage. Furthermore, worms of the second generation are liable to do further serious damage. Other parasites and diseases have not been very noticeable. On the whole, an average production is expected in German Switzerland In French Switzerland, particularly in the Cantons of Vaud and Geneva prospects are not so good and only a poor outturn is expected In Valais, prospects vary a little according to the types of vine, a poor to average outturn is expected. In all the vineyard districts growth is well advanced and, as far as it is possible to predict at present quality promises to be good if weather conditions remain favorable The crop condition on 1 July in the system of the country was 62 against 70 at the same time last year

Czechoslovakia Vines are growing well.

Argentina The quantity of wine produced in the province of Mendoza was above expectations In June work in the vineyards was continuing under good conditions

Syria and Lebanon Weather conditions in May were generally fair, flowering conditions were normal in Syria, fair in Lebanon, and good in Jebel ed Druz, but in Latakia which is a comparatively unimportant vine producing area, coditions were bad owing to hail and bad weather. On 1 June the crop condition evas as follows in the system of the Institute 90 in Syria, 100 in Lebanon, 80 in Latakia, good in Jebel ed Druz

Algeria Condition was good at the end of June though growth was retarded on dry lands in Constantine Mildew appeared only in a few places and, owing to the lack of moisture, caused no damage Oïdium, however, is causing anxiety in Oran and, in particular, in Constantine where repeated treatments failed to check it Flea-beetle is very active and *Fumagine* and *Phorna* are reported in some places

The crop, though differing from one district to another, is not very plentiful. The formation of clusters was poor. The April frosts caused serious damage in some plains in Alger and flowering in some districts of this province was unsatisfactory. There were many cases of poor fruit formation in Constantine and the crop is not likely to be larger than last year.

Libya: Temperatures in May were normal. Vines were in good condition on 1 June.

French Morocco: Vines owing to their situation have been favoured for the most part by the distribution of rainfall. At the and of June, the crop condition was very satisfactory; the vines were almost free of mildew, and though there were signs of attacks of oïdium, they were not very serious. Production was stated to be good but not very large, owing to the poor formation of grapes in the spring.

Tunisia Vines were in good condition at the end of May. Growth was good and there was little disease, except for some cases of oïdium in the north (the Bizerta region) Grapes were growing well and their size slightly offsets the disappointing formation of clusters The crop appears to be satisfactory in volume.

Current information on olives.

Greece Olive production this year is excellent A record production in comparison with the area cultivated is recorded this year in Crete In the Ionian Islands the recent rain was beneficial for the trees. In Mytilene, Chios and Samos, production is very satisfactory With some slight exceptions, it is the same in Peloponnesus and Epirus In Thessaly, Eubœa and in the Cyclades, production will be below the average this year but not below last year's level.

According to the most recent estimates, the total oil production this year will reach 3.1 to 3.3 million centals (40 to 43 million American gallons) against 1,975,000 centals (25,960,000 American gallons) last year and an average of 2,443,000 centals (32,110,000 American gallons) in the years 1931 to 1935.

Italy At the end of June production in general was expected to be fair Shedding has reduced the crop, especially in South Italy and Sicily and there was also some hail damage.

Portugal: Throughout the country the olive blossom has been very abundant and the crop condition promises an excellent harvest The crop condition on 1 June was 82, as against, 73 on 1 May and 62 or 1 June 1936. According to information referring to the end of June, the excellent conditions attending flowering, and fruiting and the abundance of fruit give promise of a plentiful production of olive oil

Argentina The picking of olives in the provinces of La Rioja and Mendoza has given good results.

Syria and Lebanon Conditions in May were generally favourable for growth and flowering. Condition on 1 June was as follows in the system of the Institute. 90 in Syria, 100 in Lebanon, 110 in Latakia

Algeria At the end of June flowering had finished and the fruit was forming normally. Crop prospects were good, despite a considerable shedding of olives. Condition is uneven and the shortage of moisture is causing anxiety as to the crop results which had previously diminished owing to shedding caused by sirocco.

Libya: Temperatures were normal in May Olive trees were in good condition on 1 June.

Tunisia: At the end of May, in the south (the Susa and Sfax areas) olives were very uneven in appearance. On the whole, flowering gave promise of an average crop, provided shedding did not occur in the summer. It should be noted that rainfall was light in these areas In the central districts (Tunis and Kef areas) fruit appeared to be forming normally. In the north (the Bizerta region), prospects were very good in some places and average in others.

Current information on flax.

Area and crop condition of flax.

COUNTRIES		Area sown 1937	Area sown 1936	Area sown Average 1931 to 1935	% 1937 1936 = 100	% 1937 Aver = 100	Crop Condition †) 1-VII 1937 a)	1-VII 1937 b)	1-VII 1937 c)	1-VI-1937 a)	1-VI-1937 b)	1-VI-1937 c)	1-VII-1936 a)	1-VII-1936 b)	1-VII-1936 c)
		1,000 acres													
Austria			6	5			2.4	—	—	—	—	—	2.4	—	—
Belgium		70	72	33	96.9	211.3	1)	—	—	—	—	—	—	1)	—
Bulgaria		10	6	2	161.7	407.9	—	—	—	—	—	—	—	—	—
Hungary	(a)	10	9 1)	7	112.5	136.2	—	—	—	—	—	—	—	—	—
	(b)	15	15 1)	27	103.4	55.5	—	—	—	—	—	—	—	—	—
Italy		25	20	9	126.2	271.1	—	—	—	—	—	—	—	—	—
Lithuania 2)			208	145			—	100	—	—	—	—	—	100	—
Netherlands		43	33	14	130.6	293.4	—	—	—	—	—	58	—	64	—
Poland			330	257			—	—	3) 2.5	—	—	—	—	2) 3.0	—
Czechoslovakia		43	40	23	105.3	187.1	—	—	—	—	—	—	—	—	—
Canada		427	468	377	91.3	113.1	—	—	—	—	—	—	—	—	—
United States		1,081	1,180	1,770	91.6	61.1	—	—	73.7	—	—	—	—	—	55.8
India		3,594	3,457	3,230	104.0	111.3	—	—	—	—	—	—	—	—	—
Egypt		7	6	4	109.1	176.5	—	—	—	—	—	—	—	—	—
French Morocco			43	49			—	—	—	—	—	—	—	—	—

† See explanation of the various systems page [illegible] — a) Crops mainly for fibre production — b) Crops mainly for seed production — 1) Average 1934 and 1935 — 2) Flax and hemp — 3) Middle of previous month.

Austria Flax was rather short at the end of June but was growing more vigorously Flowering of the early varieties had begun at this time

Belgium Flax crops are on the whole good

Bulgaria The crop condition of flax at the end of June was excellent

France On 1 July, flax was looking well In the first decade of July temperatures were rather high and there was a general lack of rain towards the end crops were beginning to show the effects of drought, stormy showers, at more or less regular intervals, fell during the following week

Hungary By 6 July, the flax harvest had begun in some places The crop for fibre is generally thin and poor The crop for seed promises an average yield The seeds are fairly well developed

Italy The condition of the flax crops in June was generally good, except in the Province of Ancona Harvesting was in full swing in the middle of July and yields were good

Latvia According to agricultural correspondents, the crop condition of flax on 1 July was 45.0 per cent average, 13.6 per cent above average and 41.4 per cent below average. The situation is largely to be attributed to the severe drought

Netherlands The crop suffered seriously from the weather and remained short.

United Kingdom The sowing of the flax crop in Northern Ireland was completed early in May. In most districts sowings were on a smaller scale than last season With good weather and soil conditions prevailing for sowing, the crop has brairded well. There was some insect trouble but little damage was done and the crop was in a satisfactory condition at the end of May

Czechoslovakia: The condition of flax is uneven. In some areas it is rather short.

U. S. S. R.: The heavy rains of the third decade of June and the first decade of July in the flax-growing regions accelerated ripening considerably. The crop situation is satisfactory At the end of the first decade of July lifting had begun in some areas.

Argentina (Telegram of 21 July). The situation of the flax sowings varies from region to region. In the Provinces of Buenos Aires and Entre Rios the weather conditions were generally favourable but in Cordoba, Santa Fé and the Pampa field work has been delayed by the dry condition of the soil and sowings were hampered

United States. The production of linseed in 1937 is expected, on the basis of the crop condition at 1 July, to amount to about 4,268,000 centals (7,622,000 bushels Compared with 3,308,000 centals (5,908,000 bushels) in 1936 and an average of 5,639,000 centals (10,070,000 bushels) in the period 1931-35

The area expected to be harvested, at 1,081,000 acres is lower than any harvested area recorded in post-war years but, as a result of the favourable conditions of the year, the yield per acre is expected to be as high as 7.1 bushels compared with 5.0 bushels last year and an average of 6.9 bushels in the ten years 1923 to 1932

Uruguay. In June the sowings of flax were in progress under favourable conditions

Egypt: The production of linseed in 1937 is estimated at 45,700 centals (81,600 bushels), compared with 43,000 centals (76,800 bushels) in 1936 and an average 28,200 bushels (50,400 bushels) for the previous five years, percentages are respectively 106.2 and 162.2

French Morocco. Though linseed production is rather low, because of bad weather conditions, at the same time there is a noticeable new tendency among European settlers to cultivate the flax for fibre, and this has been done this year over quite a considerable area

Current information on cotton.

Bulgaria: According to the most recent estimate, the area cultivated to cotton this year is about 121,700 acres against 72,200 acres in 1936 and an average of 44,400 acres in the five years ending 1935, percentages 168.5 and 274.3. The crop condition of cotton at the end of June was excellent.

Italy: The cotton crops, with the exception of those in Sicily, showed good growth in June.

U. S. S. R.: In the second half of June and the first half of July, weather was hot and fine in Central Asia. In the unirrigated cotton area (Ukraine and North Caucasus), frequent warm showers have fallen, which have greatly accelerated the growth of cotton. By the end of June in the unirrigated area flowering had begun while in the irrigated area plants were forming their fourth or fifth leaf.

The crop situation is satisfactory. According to the report of the Commissariat of Agriculture, on 1 July the second weeding had already been finished in 94 per cent. of cases and the third in 70 per cent.

The work of irrigation was proceeding well; on 1 July the first irrigation had been made everywhere, the second on 82 per cent. of the area and the third on 78 per cent.

United States: During the week ending 23 June, temperatures in the cotton belt averaged considerably above normal in the north and near normal in the south. Rainfall was moderate to heavy over much of the eastern part of the belt, but was light to only moderate in most other sections, the weather generally being favourable.

In Texas the progress and condition of the crop ranged from fair to good with fields generally clean and plants blooming freely in the south. There has, however, been considerable replanting, which is just completed, and much of the crop is a fortnight late. In Oklahoma conditions were generally favourable, except that much replanting has been necessary in the western portion. Some plants are blooming in the southern section of the State

In the central States crop progress varied from fair to excellent. In the eastern part of the belt further reports were received of weevil activity. Some improvement has taken place in the Carolinas and crop progress in Georgia was mostly very good.

Weather during the week ending 30 June was generally warm and sunny, with very little precipitation until the latter part, when showers were general over the Eastern Belt Weather was generally favourable

In Texas progress of cotton was fair to good, but it is on the average nearly a fortnight late in most districts. Bolls are forming well in the northern portion but in the northwest plants are in all stages of development from just planted to knee-high. Picking is general in the southern section.

In Oklahoma progress and condition are mostly good, with replanting about finished in the west. In the Central States of the belt weather was mostly favourable, although in some wet sections fields are still grassy. Squares are forming generally in northern sections, and plants are blooming in the south

In the Atlantic area squares are forming well in the northern districts Bolls are appearing as far north as south-eastern North Carolina.

In some moisture sections, such as parts of South Carolina, plants are sappy, with fields grassy and weevil active

Weather during the week ending 7 July was cool in the Eastern Cotton Belt and warmer than normal in the west. Substantial rains occurred in most places east of the Mississippi Valley, while in the Western half of the belt, except locally in some northern sections, the week was almost rainless

The weather was mostly favourable for cotton, and fair to good advance is reported from most sections

In Texas progress continued fair to good, and bolls were opening rapidly. Picking is progressing in the extreme south. In Oklahoma progress and condition continued fair to good, although there is complaint of grasshopper damage in some western countries.

In Arkansas weather was favourable except for too much rain in the northwest. Plants are mostly strong, and are blooming in southern and central portions. In the lower Mississippi Valley there was generally dry and sunny weather, which was favourable for holding weevil in check.

From Alabama and Tennessee eastward there was considerable raintall, and the increased moisture was beneficial in some localities, but favoured weevil activity in others.

Generally, however, weather was largely favourable, and the progress of cotton has been good in most places. Plants are squaring and blooming freely in the Central Sections, while bolls are forming as far north as southern South Carolina, and there is scattered blooming into northern Georgia and parts of Tennessee.

The acreage of cotton in cultivation on 1 July was estimated by the Government to be 34,192,000 acres, compared with 30,960,000 acres in 1936 and an average of 34,382,000 during the five years ended 1935, percentages, 110.4 and 99.4 Increases are shown in all States with the least expansion in Oklahoma and Texas, where increases of 3 and 7 per cent. respectively are indicated. Increases in the South Atlantic and South Central States range from 10 per cent in Louisiana and Alabama to 16 per cent in South Carolina and 28 per cent in Florida.

Georgia shows an increase of 15 per cent , Mississippi and Arkansas 12 per cent. and North Carolina 11 per cent. The increase in California is 67 per cent., which, following the increase of 68 per cent in 1936, places the current year's acreage for the State at the high record of 618,000 acres

Haiti · The total cotton exports in the period October-May of the season 1936-37 were 109,800 centals (22,970 bales) against 108,700 centals (22,740 bales) exported in the corresponding period of the previous season

Venezuela The cotton crop is reported to be very light for the season 1937-38.

Indo-China: Cotton harvesting was completed at the end of May in Central Annam but yields were mediocre owing to drought in some provinces (Quang-Nam). In South Annam the plants suffered considerably from drought, growth was delayed and flowering failed.

Syria and Lebanon. On 1 June, crops were in good condition. Expressed in the system of the Institute, crop condition was 85 in Syria and 100 in Latakia In the latter, where the crop is of less importance, there is an increase of 20 per cent in the cultivated area over last year, the average now being 10,400 acres.

Egypt (Telegram of 15th July) The area cultivated to cotton this year is about 2,053,000 acres against 1,781,000 in 1936 37 and 1,657,000 on the average of the five seasons ending 1935-36, percentages 115 3 and 123 9.

French Morocco The area under cotton has jumped up this year, particularly in the irrigated area round Rharb, not only among the European settlers, who had neglected it for several years, but also among the natives. For the latter the action taken by the administrative services has had very encouraging results. No official statistics have yet been compiled

Nigeria · It was reported in May that cotton ginning was practically finished in the North and exports were expected to be just under 160,000 centals (33,500 bales of 478 lb) compared with 191,600 (40,090) last season. Percentage: 83 5.

Uganda In the Eastern and Northern Provinces the average planted to the end of May with the new cotton crop was reported to be considerably larger than that planted last year to the corresponding date, this being mostly due to the adoption of earlier plantings. In the Buganda Province the average was about the same as last year. Weather conditions were favourable and in all areas germination was reported to be good and issues of seed had been heavy.

According to the most recent estimate, the 1936-37 production of ginned cotton amounted to 1,331,000 centals (278,400 bales of 478 lb.) against 1,300,000 (272,000) in 1935-36 and an average of 984,000 (205,900) in the the five years ending 1934-35; percentages 102.4 and 135.2.

Tanganyika: The quantity of ginned cotton available for sale is estimated at 270,000 centals (56,500 bales of 478 lb.) last year's figure being 285,000 (59,500). Percentage· 94.9.

Current information on hemp.

Austria: At the beginning of July, hemp was rather backward.

Bulgaria: According to the most recent estimate, the area cultivated to hemp this year is about 18,100 acres against 15,100 acres in 1936 and 12,800 acres on the average of the five years ending 1935; percentages, 119.8 and 141.6.

The crop condition of hemp at the end of June was excellent.

Hungary: On 6 July, the flowering of hemp had begun. Crops are quite high and thick. An average harvest is forecast.

Italy. The condition of the hemp crop in June was generally good. In the middle of July there were very high yields of good quality. Wind and hail damage were limited to a few small areas. Harvest had begun in Campania.

Poland. On 15 June crop condition was 2.6 against 3.1 at the same date last year.

Syria and Lebanon. Crop condition in Syria on 1 June was good (82 in the system of the Institute).

Current information on hops.

Belgium. Hops have been attacked by green-fly, *Peronospora*, red spider and, in some places, by oïdium.

The area cultivated to hops this year is about 2,300 acres against 2,400 in 1936 and 1,900 which was the average of the five years ending 1935, percentages 95.9 and 122.8.

France. Crops suffered a serious attack of mildew in June.

Hungary. On 6 July, the flowering of hops was finished. Crop condition was good.

United Kingdom. Hop bines made fair progress and are stated generally to be vigorous.

Czechoslovakia. Hops grew well and have already reached the wires. They are still partly threatened by mildew but otherwise their condition is satisfactory.

United States. The area under hops this year is estimated at 35,000 acres compared with 31,500 acres in 1936 and an average of 29,900 acres in the years 1931 to 1935, percentages, 111.1 and 117.1. Production is expected to reach 44,720,000 lb. compared with 23,310,000 lb. in 1936 and an average of 36,926,000 lb., percentages, 191.8 and 122.8.

Current information on tobacco.

Belgium: Tobacco is growing well.

The area cultivated to tobacco this year is about 6,300 acres against 6,700 in 1936 and on average of 7,200 in the five years ending 1935, percentages 93.1 and 87.1.

France: On 1 July, tobacco was growing in good conditions.

Greece: The sowing of tobacco and the later work of cultivation were done under very fair weather conditions. In the first two decades of June weather was favourable for the growth of the crop.

Hungary: On 6 July, tobacco was growing well. The leaves were healthy, and flowering had begun.

Italy Tobacco crop condition was good generally in June.

Czechoslovakia: Tobacco having had enough moisture was on the whole in good condition.

According to the most recent estimate the area cultivated to tobacco this year is about 23,300 acres against 24,200 in 1936 and 24,100 on the average of the five years ending 1935; percentages 96.1 and 96.6.

Argentine: Drought has done considerable damage to the tobacco crop in the province of Cordoba In the province of Corrientes yields are barely mediocre.

United States: The area under tobacco at 1 July was estimated to be 1,690,000 as compared with 1,437,000 acres in 1936 and an average of 1,560,000 acres in the five years 1931 to 1935; percentages, 117.6 and 107.7. Production was forecast on the basis of crop condition on 1 July at 1,420,943,000 lb against a revised estimate of 1,153,083,000 lb in 1936 and a five years average of 1,266,355,000 lb, percentages, 123.2 and 112.2.

Indo-China Harvesting in Tonkin was finished in some places at the end of May and was satisfactory. Harvesting in Annam was completed, but the outturn was very poor.

Iran: The tobacco monopoly administration is assisting by every means the extension of tobacco growing in the large province of Guilan.

In the course of the past year, 1,300,000 acres of land were devoted to this crop. Modern ploughing machines imported from abroad are distributed to the peasants to assist their works. Every peasant with an area of arable land exceeding 5 acres is given the use of these ploughing machines without charge. Loans are also granted to the peasants

Palestine: A substantial increase is notified in the acreage devoted to tobacco, which had more than doubled compared with the past year, reaching about 13,600 acres.

Syria and Lebanon: On 1 June the crop situation was generally good The crop condition, expressed in the system of the Institute was 102 in Latakia and 85 in Syria. In the former, which grows most of the tobacco crop, there was an increase of 8 per cent in the area compared with last year (6,700 acres against 6,200 acres).

Algeria: The first tobacco planted out was mostly in flower at the end of June. The plants were rather hindered in their growth by drought. On 1 July, the crop condition was average or good, according to district.

The area cultivated to tobacco this year is about 53,000 acres against 55,000 in 1936 and 54,000 on the average of the five years ending 1935; percentages 96.0 and 97.8.

French Morocco: The cultivation of tobacco has this year been increasingly popular among the European farmers, and there are prospects of an increase in acreage and production.

Nyasaland: Weather conditions in May were unfavourable for the tobacco crop in the Northern Province, and reports indicated that the yield would probably fall below the previous estimates.

Current information on other products.

Cacao.

Haiti: The total exports of cacao in the period October-May of the 1936-1937 season were 26,200 centals, against 33,700 centals in the corresponding period of the previous season.

Trinidad: It was reported in May that " witch broom " disease was spreading in the cacao cultivation.

Tea.

India In North India, the weather was very hot and dry during the early part of May, but later good rain fell and prospects improved. In South India, the weather was warm and showery and prospects are good

In North India, statistics to the end of May recorded a decrease of 8 ½ million lb as compared with the outturn to the same date last year. In South India, the outturn was 7.3 per cent. ahead of that to the same date last year

Indo-China: In some provinces of Tonkin (Phu tho) the crop of shoots was poor at the beginning of May, considerable in the middle and average at the end.

Iran. In the province of Guilan tea picking has just begun. A very good production is expected

Japan Favoured by the weather the crop condition of tea was normal on 1 July.

Coffee.

Brazil The following table shows the first returns made by the D. N. C. of the exportable production for the season 1 July 1937-31 March 1938 classified by producing states compared with the same period of the previous season.

	1 VII 1937 31 III 1938	1 VII 1936 31 III 1937
	1,000 centals	
São Paulo	23,188	17,500
Minas Geraes	5,763	6,080
Epirito Santo	1,753	2,320
Rio de Janeiro	1,290	1,260
Paranà	959	410
Bahía	331	400
Pernambuco	265	310
Goiás	132	90
Total	33,681	28,450

The quantity of exportable coffee in Brazilian ports on 30 June 1937 reached 4,442,000 centals, of which 2,926,000 were in the port of Santos.

The quantity of coffee destroyed since 1931 till the end of June 1937 is 62,805,000 centals, of which 1,301,000 centals were destroyed in June.

During the recent congress of the Brazilian coffee producing states, which was held under the auspices of the D. N. C., a number of resolutions were adopted to meet the situation caused by the abundant harvest of the season which has just begun. These resolutions may be summarised as follows:

(1) Acquisition by the D. N. C. of 30 per cent. of the total harvest with 3 per cent of impurities, at the price of 5 mil reis per bag of 60 kilograms (bag included)

(2) Acquisition by the D N. C. of 40 per cent. of the total harvest at the price of 65 mil reis per bag of 60 kilograms (bag included).

(3) The remaining 30 per cent. constitutes the part freed for trading, under the conditions established by the regulation of shipments.

For the application of this plan which aims at a recovery of the statistical equilibrium of coffee production, the D N. C. whose functions have been extended until 31 December 1939 has been authorised to float a loan of 500,000 contos de reis at 6 per cent. interest redeemable after 15 years.

All the coffee purchased outright by the D. N. C , for the purpose of maintaining the statistical equilibrium, will be eliminated, with the exception of that destined for industrial uses, which will be denatured in the most convenient way. Coffee planting has been forbidden throughout the country until 31 December 1939, a fine of 5 mil reis being imposed for each new plant. Finally arrivals of coffee in the ports of shipment will be regulated by the D N C in order that the stocks may be maintained within the following limits. Santos 1,587,000 centals, Rio and Nitcheroy 926,000 centals. Angra do Reis 79,000 centals, Victoria 307,000 centals, Paranagua 146,000 centals, Bahía 70,000 centals and Recife 66,000 centals

Netherlands Guiana: In June the condition of the coffee-shrubs varied from average to bad.

Haiti: The heavy rain that fell in May did some damage to coffee plantations. The prospects for 1937-1938 are still good, however.

Dominican Republic: In May weather condition were favourable to the growth of coffee For 1937-1938 an excellent harvest is assured.

Surinam: Condition was fairly good and prospects promising.

Indo-China: The harvesting of the Chari variety began at the end of May and was better than that of last year. The continuous drought has caused damage in the young plantations in Annam Flowering was not plentiful.

Angola: Conditions during June were favourable for coffee. Crop prospects are good.

Kenya: Weather conditions in June were very favourable for coffee plantations. The prospect of an excellent harvest for 1937-38 is confirmed.

Tanganyika: The quantity of coffee available for sale is estimated at 369,000 centals, last year's figure being 301,000. Percentage: 122.8.

Groundnuts.

Argentina: In June the work of lifting and cleaning of groundnuts was in progress, with generally high yields, which in some parts of the province of Santa Fé reached 13 centals per acre.

Indo-China: At the end of May, the condition of the standing crops was normal in North Annam where they were in process of fruiting. Lifting was in progress in some provinces in Central Annam (Quang-Nam) with fairly good yields. Harvesting in South Annam was finished in the middle of May with yields below average in some provinces (Binh-Dinh at Phy-Yên).

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details of the groundnut area

	1937 acres	1936 acres
Area harvested in April	24,700	23,200
Area harvested from 1 January to 30 April . .	150,000	146,300
Area of standing crop at the end of April . . .	185,800	173,500

Egypt: Sowing of the late areas of groundnuts has been terminated. Growth is satisfactory. Irrigation and hoeing are in progress.

Tanganyika: The quantity of groundnuts available for sale is estimated at 536,000 centals, last year's figure being 508,000. Percentage: 105.5.

Colza and sesame.

Austria: At the beginning of July, the condition of colza and rape was 2.3 against 2.4 on 1 June and 2.4 on 1 July 1936. Pod formation is generally satisfactory.

Bulgaria: According to the most recent estimate the area cultivated to colza this year is about 13,300 acres against 6,600 acres in 1936 and an average of 26,000 acres in the five years ending 1935, percentages 201.1 and 51.2.

Hungary: On 6 July, the threshing of colza had ended in the greater part of the country. The seeds are on the whole healthy and well developed.

Netherlands: According to the most recent estimate the area cultivated to colza this year is about 6,140 acres against 5,110 in 1936 and 4,380 on the average of the five years ending 1935, percentages 120.1 and 140.0.

Poland: Towards the middle of June colza was in process of ripening throughout most of the country. On 15 June the crop condition of winter colza was 2.8 and of spring colza 2.4 against 3.7 and 3.0 respectively at the corresponding date of last year.

Romania: Threshing of colza was almost finished in the middle of July. Yields are good.

Indo-China: Sowings had to be repeated in one province of Tonkin (Phu tho) owing to the drought. In other provinces (Santay and Langson) growth was passable at the end of May and fruiting was in progress elsewhere (Phu yên, Hadong and Bac niang). In Annam crops were flowering at the end of May and growth, as a result of the rains, was normal.

Syria and Lebanon: Crop condition on 1 June was average in Syria and placed at 80 in the system of the Institute. In Latakia, it was good (102).

Tanganyika. The quantity of sesame available for sale is estimated at 94,000 centals (4,700 short tons) last year's figure being 73,500 (3,670). Percentage:

Current information on fodder crops.

Austria: At the beginning of July the growth of mangels was retarded. The first harvest of artificial meadows was of very good quality, but yields vary considerably After the first harvest growth was rapidly resumed, but many fields have had to be ploughed because of thinness in patches and weeds. Fields have been planted with vetches and other crops for green fodder. Haymaking on natural meadows was in progress during the same period.

The weather was generally fair for the harvesting of hay, so that its quality is exceptionally good Yields are large everywhere. The growth of meadows after the first cutting is vigorous. Pastures are much improved following the rains of mid-June.

Belgium: The meadows have yielded a harvest of hay that is abundant but often of poor quality. Work in the fields was hindered by rain. The hay harvest was difficult The use of drying machines has greatly facilitated this work and has made it possible to secure hay of good quality despite the bad weather. The dressing and hoeing of root crops was difficult owing to the rapidity of growth and the scarcity of labour

Bulgaria The general condition of fodder crops at the end of June was excellent.

The following are the most recent estimates of the area under fodder crops compared with those of the past year and the average of the five preceding years.

	1937	1936	Average 1931-1935	% 1937 1936 = 100	% 1937 Average = 100
	(thousand acres)				
Millet for feed	56.0	64.6	42.2	86.7	132.5
Mangels	15.3	10.0	4.8	152.4	318.9
Alfalfa	62.6	73.0	67.9	85.7	92.1
Vetches	361.6	305.5	383.7	118.4	94.2

Esthonia: Following the lack of rain in the eastern areas, the outlook for hay from temporary meadows is not as good as it was a month ago.

The condition of permanent meadows for hay was good at the beginning of July.

Irish Free State: Weather conditions during June were favourable to the growth of grass and fodder crops.

France: The first half of June was hot and dry. Sharp showers and hailstorms occurred with a fall in temperatures in the second half. Haymaking was generally assisted by the fine weather and was carried out in good conditions during the month. yields are better than last year but quality in many cases is distinctly poorer. The alfalfa, in particular, contains a high proportion of grass. Large supplies of fodder remain from last year.

We give in the following table estimates made on 1 June of the principal fodder crops, meadows and pastures, with the exception of natural pastures.

The condition of fodder crops

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 July 1937			1 June 1937			1 July 1936		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
CLOVER									
Germany	—	—	3 1	—	3 0	—	2 3	—	—
Austria 1)	2 4	—	—	2 3	—	—	1 8	—	—
Netherlands									
red clover	2) 74	—	—	—	—	—	2) 68	—	—
white clover	2) 75	—	—	—	—	—	2) 73	—	—
Poland	—	—	2) 2 2	—	—	2) 2 6	—	—	—
Egypt (bersim)	101	—	—	101	—	—	101	—	—
ALFALFA									
Germany	2 7	—	—	2 7	—	—	2 2	—	—
Austria	2 5	—	—	2 5	—	—	1 7	—	—
Netherlands	2) 60	—	—	—	—	—	—	—	—
Canada	—	—	95	—	—	89	—	—	94
MANGELS									
Germany	2 8	—	—	2 8	—	—	2 7	—	—
Austria	2 6	—	—	2 7	—	—	2 4	—	—
Scotland	—	100	—	—	—	—	—	100	—
France	—	—	—	—	63	—	—	—	—
Norway 3)	103	—	—	—	—	—	—	—	90
Switzerland	81	—	—	80	—	—	87	—	—
TEMPORARY MEADOWS									
Austria 4)	2 2	—	—	2 2	—	—	1 6	—	—
France									
leguminous crops	—	—	—	—	72	—	—	—	—
annual green fodder crops	—	—	—	—	72	—	—	—	—
artificial meadows 5)	—	—	—	—	73	—	—	—	—
Scotland	110	—	—	—	—	—	—	—	80
Norway	110	—	—	—	—	—	—	—	86
Switzerland	85	—	—	86	—	—	87	—	—
Canada 6)	—	—	90	—	—	90	—	—	99
PERMANENT MEADOWS									
Germany									
irrigated meadows	2 4	—	—	2 4	—	—	2 2	—	—
other meadows	2 6	—	—	2 5	—	—	2 4	—	—
Austria	2 2	—	—	2 2	—	—	1 7	—	—
France	—	—	—	—	74	—	—	—	—
Scotland	110	—	—	—	—	—	—	—	85
Norway	107	—	—	—	—	—	—	—	81
Netherlands 7)	2) 77	—		—	—	—	2) 68	—	—
Poland									
ordinary meadows	—	—	2) 2 1	—	—	2) 2 8	—	—	2) 2 6
low meadows	—	2) 3 0	—		2) 3 0	—	—		2) 2 9
improved meadows	—	2) 3 0	—	2) 3 4	—	—	2) 3 3		—
Switzerland	84	—	—	87	—	—	87	—	—
PASTURES									
Germany	—	—	3 1	2 6		—	2 7	—	—
Austria	2 3	—	—	2 6	—	—	2 5	—	—
France	—	—	—	—	73	—	—	—	—
Netherlands	2) 75	—	—	—	—	—	2) 68	—	—
Poland	—	—	2) 2 0	—	—	2) 2 7	—	—	2) 2 6
Portugal	—	—	—	68		—	69	—	—
Switzerland	84	—		80	—	—	78	—	—
Canada	—	—	96	—	—	92	—	—	—

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a) Above the average — b) Average — c) Below the average — d) Excellent — e) Good — f) Average — g) Bad — †) See explanation of the various systems on page 477 — 1) Red clover — 2) At the middle of the preceding month — 3) Turnips — 4) Kleegrass — 5) Mixed permanent meadows — 6) Clover and hay — 7) Meadows for hay

	1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
	(Thousand acres)				
Annual crops					
Mangels	1,979	1,989	1,909	99.5	103.6
Artichokes	353	348	331	101.5	106.6
Annual green fodder	1,723	1,751	1,700	98.4	101.3
Total 1) . . .	*4,055*	*4,088*	*3,940*	*99,2*	*102,9*
Artificial meadows					
Leguminous meadows (clover, alfalfa, sainfoin)	7,380	7,403	7,294	99.7	101.2
Temporary meadows (grasses or mixed with leguminous plants)	1,370	1,339	1,265	102.3	108.3
Total . . .	*8,750*	*8,742*	*8,559*	*100.1*	*102.2*
Meadows and natural pastures					
Natural meadows	13,630	13,595	13,630	100.3	100.0
Grass (improved pastures or pastures for fattening) . .	4,782	4,627	4,593	103.3	104.1
Total 2) . .	*18,412*	*18,222*	*18,223*	*101,4*	*101,4*

1) Excluding cabbages, turnips and swedes (1,117,000 acres on the average in 1931-1935) — 2) Excluding pastures and natural grazing land not improved or maintained (9,593,000 acres in the average of 1931-1935)

Hungary. On 6 July, mangels were growing very well. The second cutting of clover was in progress and was giving good yields, while that of alfalfa was finished. A good yield was forecast for the third lucerne cut. Maize for green fodder and mohar promise a good production. The harvest of mixtures of vetches and oats is in progress, and is giving average yields. The growth of permanent meadows, which have been cut for the first time, is proceeding well. Following the recent rains, pastures are offering sufficient nourishment for cattle.

Italy. In June, the hay harvest and production of the second crop of permanent meadows were considered good. Mountain pastures show a good growth, but not so good as these of the plains and the bottom of the valleys, especially in the islands. At the middle of July, fodder production was large. The third harvest of alfalfa was good. Haymaking was proceeding well and the pastures are well grown.

Latvia: The crop condition of annual clover on 1 July was reported to be average by 36.1 per cent. of the crop correspondents, above average by 41.5 per cent and below average by 49.4 per cent.

Lithuania: The drought of June has affected mostly the crops of clover, meadows and pastures. Mowing was done under very good conditions. The gathering in of hay was effected without rain, whereas that of the hay of natural meadows suffered a little rain.

Netherlands: Red and white clover developed luxuriantly thanks to the abundant rain. Condition is very good but of alfalfa in many localities only moderate Condition of both rotation and permanent meadows is good to very good.

The following are the most recent estimates of area under fodder crops compared with those of the part year and the average of the five preceding years.

	1937	1936	Average 1931 35	% 1937 1936 = 100	% 1937 Average = 100
	(thousand acres)				
Temporary meadows	45.8	47.9	52.2	95.7	87.7
Clover	56.6	57.4	70.9	98.7	79.9
Mangels	118.0	117.0	111.8	100.9	105.6
Carrots for fodder	3.2	3.4	4.1	95.5	79.5
Other tuber and root crops	0.4	1.2	0.6	35.4	70.8
Kohlrabi and turnips	19.5	21.1	27.0	92.6	72.4
Alfalfa and other fodder	17.9	19.4	16.0	92.0	111.4

Poland The crops of hay and clover of the first cut, which was finished almost throughout the country, will probably be lower than last year Because of the bad effects of the drought on the growth of the second crop, the condition of clovers, meadows and pasturages has worsened Correspondents complain of a definite shortage of fodder.

Portugal The fodder crop condition on 1 June in the system of the country was 72, as against 71 the previous month and 79 on 1 June 1936 The corresponding figures for grasses are 75, 73 and 83

Romania: As a result of the rains, mountain pastures and meadows were better in the middle of July

United Kingdom Conditions during June were, on the whole, favourable Growth of hay during the month was good but, owing to cloudy and showery weather in the middle of the month, harvesting operations have been prolonged The hay yield will be above the average

Mangels and turnips, although sown late are a healthy crop and are making good progress

Switzerland: Weather conditions in June were extremely favourable for fodder crops. The first fortnight was very hot and dry, while in the second fortnight showers occurred at various times which were very opportune. The hay harvest was completed under ideal conditions, so that it is of excellent quality, the quantity is satisfactory. In the higher districts also, haymaking has been finished under good conditions. Generally speaking, the second harvest of natural and artificial meadows is reasonably satisfactory. The rains of these last weeks have been very welcome. The gathering in of the second harvest has already begun on the plains. Only in the northwestern area of Switzerland, where the soil is lighter, have meadows suffered from dryness, and the outturn of the second crop will be rather poor. In the Alpine regions, grasses are well grown and promise good pasturage.

Czechoslovakia The first cutting of clover and permanent meadows has yielded a satisfactory harvest of hay It was carried out easily in favourable weather.

Argentina Because of low temperatures and lack of rain in May the condition of artificial meadows and pastures was not satisfactory.

Canada Feed prospects in the Prairie Provinces declined seriously as a result of the general deterioration in conditions caused by the drought. Alfalfa and pasture, the major areas of which lie in the east, showed a moderate improvement during June while the hay and clover figure was unchanged from 31 May, an improvement in the east and in British Columbia offsetting the declines in other provinces. Prospects deteriorated still further in the Prairie Provinces in the first part of July and pastures in much of Saskatchewan and Alberta are ruined. Heavy shipments of cattle were being made to areas where feed was more plentiful.

The first estimates of the area under certain fodder crops are given below together with the figures of last year and the five-year averages

	1937	1936	Average 1931 1935	% 1937 1936 = 100	% 1937 Average = 100
	(thousand acres)				
Hay and clover (1)	8,539	8,787	8,876	97.2	96.2
Alfalfa	811	854	679	95.0	119.4
Fodder maize	407	408	411	99.6	98.9
Turnips, etc	180	182	175	99.0	102.9

1) Seeded meadow only.

Uruguay The rather dry and cool weather of May and the first fortnight of June was favourable for the sowing of fodder cereals. The lack of rain encouraged the spreading of greenfly (*Toxoptera graminum*), but the rain that fell towards the end of June has limited the damage it has done. The crop condition of oats, of barley and of pasturages is generally good.

Algeria: The fodder crops were harvested in good conditions. The yield varies, being plentiful and of good quality in some places but light and rather mediocre in others. The summer crops – maize, sorghum, etc. – are unsatisfactory in many cases on unirrigated lands. The few green pastures remaining at the beginning of June dried up during the month.

Egypt Areas allotted to forage were completely cut for the last time in the early days of July, and threshing of the areas left for " tagawi " is about over; and threshing is proceeding. The unit-yield is expected to be satisfactory.

The cotton-worm appeared in small patches not exceeding 1,500 acres distributed in several provinces It was controlled in accordance with the relative instructions.

French Morocco. In the north, the rain of 7 and 8 June stimulated new growth in pastures; at the end of June, the grass was still plentiful but was beginning to dry. In central areas, the situation was not so good and pastures were nearly dried up.

Supplementary figures for 1936.

COUNTRIES	AREA					PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 and 1936/37		1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 and 1936/37	
				1935 — 1935/1936 = 100	Aver. = 100							1935 — 1935/1936 = 100	Aver. = 100
ITALY	Thousand acres					Thousand centals			Tousand pounds				
Flax (fibre) .	15	8	10	186.6	147.7	72	35	48	7,130	3,543	4,767	201.2	149.6
PORTUGAL									Thousand bushels				
Maize	1057	1,071	980	98.7	107.8	6,767	5,922	8,404	12,084	10,576	15,007	114.3	80.5
YUGOSLAVIA													
Maize . .	6,683	6,109	6.178	109.4	108.2	114,211	66,765	89,037	203,949	119,224	158,995	171.1	128.3
Rice (rough) .	6	8	5	82.9	123.6	63	97	65	140	215	144	65.3	97.2
Potatoes . .	648	635	605	102.0	107.0	35,587	29,794	32,118	59,310	49,656	53,529	119.4	110.8
									Thousand short tons				
Sugar beet .	74	73	96	102.5	77.4	13,611	10,675	14,001	681	534	700	127.5	97.2
									Thousand bales of 478 lb				
Cotton (ginned) .	4	3	2	132.6	181.2	10	5	2	2	1	1	207.8	396.4
									Thousand bushels				
Linseed	34	29	29	114.9	117.5	34	20	21	60	36	37	164.4	159.6
									Thousand pounds				
Flax (fibre)						264	222	226	26,352	22,169	22,604	118.9	116.6
Hemp seed	130	106	77	122.7	169.1	52	46	32	5,203	4,636	3,248	112.2	160.2
Hemp fibre .						1,145	828	625	114,532	82,763	62,507	138.4	183.2
Hops . . .	7	7	5	102.9	126.4	43	42	31	4,327	4,170	3,116	103.7	138.9
Tobacco . . .	44	30	37	145.2	119.8	366	204	261	36,650	20,390	26,141	179.7	140.2
									Thousand Amer gallons				
Olive oil . . .	—	—	—	—	—	44	65	76	577	856	997	67.5	57.9
						Thousand Imperial gallons							
Vines (Wine) . .	528	512	478	103.1	110.3	85,030	119,179	86,302	102,113	143,123	103,641	71.3	98.5
CANADA									Thousand short tons				
Sugar-beet . . .	52,748	51,985	42,198	101.5	125.0	11,119	9,184	8,777	556	459	439	121.1	126.7
CHILE						Thousand centals			Thousand bushels				
Wheat	1,917	1,925	1.763	99.6	108 8	17.222	19,155	16,382	28,702	31,925	27,303	89.9	105.1
Barley	178	161	162	110.0	109.7	2,169	2,324	2,385	4,519	4,842	4,970	93.3	90.9
Oats	282	219	197	129.0	143.5	2,206	2.176	1,858	6,894	6,800	5,805	101.4	118.7

LIVESTOCK AND DERIVATIVES

Milk products in Estonia.

(1 000 lb)

	1936	1935	1934	1933	1932	1931	1930
Quantity of milk delivered to dairies							
co operative	706,165	677,144	638,525	584,305	725,467	788,630	754,749
private	76 344	74,004	68,259	52,024	69,996	94,641	100,623
Total	*782,509*	*751,148*	*706 784*	*636,329*	*795,463*	*883,271*	*855,372*
Butter produced in dairies							
co operative	28,364	27,190	25,741	23,683	29 467	32,194	30,731
private	2,042	2 117	2,013	1,719	2,428	3,389	3,548
Total	*30 406*	*29,307*	*27 754*	*25 402*	*31 895*	*35,583*	*34 279*

Pig population in Denmark.

Classification	1937					1936						
	19 June	8 May	27 March	13 Febr	2 Jan	21 Nov	10 Oct	29 Aug	18 July	13 June	2 May	21 Mar
						(Thousands)						
Boars for breeding	21	21	21	21	22	22	23	23	22	24	23	22
Sows in farrow for first time .	70	74	68	56	53	52	58	77	108	125	126	117
Other sows in farrow	164	159	162	172	188	185	182	178	185	189	182	172
Sows in milk . . .	82	89	92	84	86	90	108	122	108	99	93	100
Sows not yet covered (and not for slaughter)	26	26	26	29	28	39	42	39	30	27	25	25
Sows for slaughter	10	11	12	18	19	26	28	22	16	15	14	15
Total of sows . . .	*352*	*359*	*360*	*359*	*374*	*392*	*418*	*438*	*447*	*455*	*440*	*429*
Sucking pigs not weaned . . .	707	761	751	669	691	730	892	1,006	888	810	768	819
Young and adult pigs for slaughter												
Weaned pigs under 35 kg .	775	752	734	774	874	1,010	1,024	947	851	826	852	826
Pigs of 35 and under 60 kg	656	625	657	682	739	811	756	696	755	700	686	700
Fat pigs of 60 kg and over .	506	519	536	519	523	551	556	608	533	559	562	558
Total pigs . . .	*3,017*	*3 037*	*3,059*	*3 024*	*3,223*	*3,516*	*3,669*	*3,718*	*3,496*	*3,374*	*3,331*	*3,354*

Livestock in Hungary.

In the following table are given the principal results of the 1937 livestock census. This census is taken each year in the spring before 31 March (*see* § 23 of Law XII of 1894) on the occasion of the sanitary inspection of stock. The returns for 1937 are compared with the corresponding returns of the five preceding years and with 1911 (present territory).

Livestock in Hungary

(head)

CLASSIFICATION	1937	1936	1935	1934	1933	1932	1911
Horses	*798,066*	*794 279*	*806,560*	*803,033*	*819,871*	*845,548*	*896,498*
including							
mares over 3 years old	381 635	389 067	409 377	412,131	418,593	435,742	—
mares under 3 years old	75 827	67 289	57 968	52,672	57,545	56,963	—
adult geldings	254 501	261 450	272 078	276,429	278,683	287,529	—
Asses	*4 183*	*3 905*	*3 872*	*3,809*	*3 985*	*3 991*	*7,994*
Mules	*1 257*	*1,015*	*1,022*	*954*	*1,100*	*1,059*	*424*
Cattle 1)	*1 756 254*	*1 741 637*	*1,755 524*	*1 677 712*	*1,696,615*	*1,818,834*	*2 149,756*
including							
cows 1)	900 272	901 203	913 727	903 228	903,830	907 612	—
oxen 1)	188 696	178 368	171 129	171 305	173 768	177 538	—
Sheep	*1 483 917*	*1,350 442*	*1 227 542*	*1 087 464*	*1,056,218*	*1,210,491*	*2,406 041*
including							
ewes over 1 year old	883 149	799 908	745 436	664 219	659,893	739,531	—
ewes under 1 year old	217 634	193 607	169 888	154,077	135,164	163,056	—
wethers over 1 year old	174 396	162 717	136 942	115,685	122,661	150,590	—
Goats	*36 459*	*32 575*	*29,858*	*25,870*	*22,840*	*22,749*	*20,647*
Pigs	*2 623 530*	*2 554 323*	*3 175 822*	*2,502,163*	*1,899,479*	*2,361,195*	*3,322,407*
including							
sows over 1 year old for fattening	431 780	450 439	561 769	460,139	356,640	439,129	—
sows over 1 year old for meat	80 007	79 606	117 938	83,150	57,129	79 712	—
sows under 1 year old for fattening	658 009	619 000	759 519	595,756	438 595	564 775	—
sows under 1 year old for meat	148 037	142 967	208 784	138,445	93,733	129,711	—
castrated pigs over 1 year old	247 769	287 730	284 779	230,098	205,382	217,911	—
castrated pigs under 1 year old for fattening	617 775	590 826	703 786	587 456	462 286	547,250	—
castrated pigs under 1 year old for meat	167 549	157 784	220 527	158 024	113 100	153,215	—

1) Including buffaloes

To be able to interpret the changes in the numbers of livestock in Hungary in the last three years it is necessary to take account of the fact that this country registered in 1935 one of its worst fodder productions The poor production in 1935 of maize especially, which is the basis of the fattening of stock in Hungary, caused a great reduction in the numbers of pigs from 3 2 millions in 1935 to 2 6 millions in 1936 The number of cattle (especially of cows) and of horses decreased between 1935 and 1936 The reaction of the Hungarian breeders to the high price of fodder and the low price of stock and dairy products during the second half of 1935 and the first half of 1936 showed itself in the reduction of the number of cows and the simultaneous increase in bullocks and in the reduction of the number of mares and adult geldings and the increase of young mares The number of sheep and goats increased between 1935 and 1936 thus showing a tendency towards stock that was less exacting but quite remunerative especially in view of the relatively high prices of wool

The excellent fodder production of Hungary in 1936 and the high prices of stock and dairy products caused in 1937 a revival in the numbers of all kinds of stock, without exception The greatest increase in 1937 over 1936 was shown by goats and sheep, with 11 9 and 9 9 per cent respectively Among the different age groups, young sheep have shown the greatest increase (12.3 per cent.). This makes probable a further increase in 1937-38. The increase of pigs, cattle and horses is more moderate but here too it is the youngest age groups that have increased most. A good future development of Hungarian livestock may be forecast because of the satisfactory fodder production in 1937 and the prices of stock which are high compared with previous years.

Pig population in Norway.

Classification	1 April 1937	1 April 1936	1 April 1935	3 April 1934	3 April 1933
Pigs under 1 months old	65 143	62 075	57 447	78 475	60 694
Pigs from 1 to 2 months	43 249	40 214	37 613	48 950	40 972
Pigs from 2 to 3 months	29 375	25 961	27 191	33 498	24 447
Pigs from 3 to 4 months	27 354	25 699	28 633	31 330	23 493
Pigs for fattening					
from 4 to 5 months old	29 116	26 615	29 562	31 679	23 721
over 5 months old	57 809	54 296	62 512	62 179	45 108
Pigs for reproduction					
Boars	1 322	1 283	1 388	1 577	1 203
Sows in farrow	20 939	19 324	18 722	22 765	21 424
Sows not in farrow	17 036	15 561	13 775	18 240	13 399
TOTAL	**291,343**	**271,030**	**276,843**	**328,693**	**254,461**

Slaughterings and meat consumption in Poland in 1936.

The number of animals slaughtered in 1936 according to the monthly slaughterhouse reports (slaughterings subject to veterinary inspection) and to the quarterly reports of the communal authorities (slaughterings not subject to veterinary inspection) was as follows:

Slaughterings (in thousands)

Years	Cattle			Pigs	Sheep and goats	Horses
	Total	Calves	Other			
1936	3 598.0	2 340.8	1 257.2	5 012.4	734.0	10.9
1935	3 355.5	2 184.0	1 171.5	4 712.3	672.4	7.5
1934	3 158.6	2 077.1	1 108.5	4 455.3	607.4	5.8
1933	3 551.0	2 142.0	1 409.0	4 195.0	533.0	8.0
1928-1932	3 356.3	2 204.8	1 331.5	4 219.9	653.0	15.9

The figures show that slaughterings of all animals increased in 1936. An increase occurred in the numbers slaughtered on farms, as well as in those subject to veterinary inspection, but the extent of the increase was smaller.

The increase in pig slaughterings was partly, the result of the increase in the export of prepared pigmeats.

The consumption of meat per head, after allowance is made for net exports of meat and meat products, was as follows.

Consumption per head (lb.)

Years —	Total meat —	Beef —	Veal —	Pigmeat —	Mutton —	Horse-meat —
1936	44,60	11 99	3,90	28,06	0,64	0,00
1935	42,37	11 09	3,62	27,09	0,57	0,00
1934	41,03	10 03	3,48	26,35	0,55	0,02
1933	40,37	13,27	3,53	23,06	0,46	0,04
1928 1932	41,34	13,05	3 35	24,25	0,60	0,09

The consumption of meat per head has increased on the average by 2.20 lb. or 5.3 per cent., compared with the previous year, and, as the figures show, this increase was evident to a varying degree in all categories.

Livestock in Switzerland.

The special census of cattle and pigs, made on 21 April 1937, gave the following results.

Cattle (number).

Classification	1937	1936	1935	1934	1933
Calves not over 6 months					
for slaughter	51 775	58,175	64,843	69 941	61,879
for rearing	210,060	199,953	178,466	187,248	184,512
Young cattle from 6 months to 1 year	117 003	95,880	97 075	101,345	111,226
Heifers					
from 1 to 2 years	201,443	184 205	187,451	200,167	215,389
over 2 years	107,034	105,853	111,450	126,824	127,722
Cows	893 004	879,525	903,153	920,777	912,766
Bulls:					
from 1 to 2 years	24,232	21,631	23,895	21,080	26,429
over 2 years	7,774	7,333	8,052	8,653	10,998

Classification	1937	1936	1935	1934	1933
Oxen: . .					
from 1 to 2 years .	12,419	9,683	7 744	11,966	19,224
over 2 years	6,104	6,007	7 905	12,225	13,787
TOTAL .	1,637,718	1,568,251	1,590,040	1,660,226	1,683,932

The reduction in the number of cattle which began in 1934 has not only been checked, but it has partly been offset again by an increase of 70,000 head or 4.4 per cent. Cattle thus number nearly 1,638,000, and are not far short of the previous maximum of 1,683,000 in 1933.

With the exception of calves for slaughter, the change in direction of the figures has shown itself in every category of age and purpose of cattle. The largest increases are centred in those cantons in which the number of cattle were considerably reduced in the years 1934 and 1935, partly because of drought and for other reasons (Scaffhausen, Ticino, Valais, Graubünden). In the rest of the country, the increases in numbers differ very little from the changes for the whole country.

These changes, which have a very important bearing on the conditions of production of cattle for milk and for slaughter in the next few years, are due to several causes. The main cause is the considerable extension of rearing (*see* Crop Report No. 7, July, 1936, page 498), which is due chiefly to the fact that the prices of breeding stock rose sooner than those of cattle for milk and slaughter.

The increase in the number of cows is relatively moderate, but is general. This class, the most important for the production of milk, numbers 893,000, an increase of 13,500 head, or 1.5 per cent., on the previous year. The fact that the number of cows and heifers has further increased, despite comparatively slight additions, is due principally to the reduction of the slaughter of native cattle. Thus, in 1936, apart from slaughterings on farms, 17,500 cows, 6,600 heifers and 8,800 calves less than in 1935 were slaughtered. In the same way according to the inquiry made in 42 urban slaughter-houses for the first quarter of 1937, in comparison with the previous year 44 per cent. less cows and 37 per cent. less heifers were sent to the slaughter-house. The export of cattle also declined in 1936 by 7,100 head in comparison with 1935. Finally, the better marketing situation for milk (abolition of the milk quota), the increase in its price, the lower values of breeding stock and the considerable stocks of hay, have encouraged the keeping of cows for a longer time and have also retarded the natural reduction in their numbers.

If a general and substantial improvement in economic conditions does not cause next year a greater consumption of meat and a greater export of cattle, these changes in numbers may have serious consequences for producers. This may happen because the sale, which must inevitably take place some time, of cows kept longer will probably coincide with increasing supply on the market for heifers and especially, pigs for slaughter.

Pigs.

(number)

Classification	1937	1936	1935	1934	1933
Young pigs up to 2 months	242,085	202,056	269,420	261,922	236,890
sucking pigs	(177,306)	—	—	—	—
others (weaned)	(64,772)	—	—	—	—
Young pigs from 2 to 6 months	437,374	392,804	435,042	381,374	328,432
of which from 4 to 6 months	(209,594)	(204,968)	—	—	—
Pigs for fattening over 6 months	178,405	198,723	288 356	260 494	247,028
Sows	74,609	70,063	90,824	94 953	81,379
in farrow	(52,523)	(51,447)	(56,423)	—	—
in farrow for the first time . . .	(18 065)	—	—	—	—
others . .	(34,458)	—	—	—	—
not in farrow .	(22 086)	(27,586)	(34,401)	—	—
Boars . . .	3,155	3,362	4,128	4 117	3,720
TOTAL . .	935,628	870,008	1,088,379	1 002 860	897,449

The number of pigs on 21 April 1937 was 936,000, which is 60,000, or 6.8 per cent , more than in April of the previous year The changes compared with the results of the census of the Spring of 1936 are very different from one canton to another. While Schaffhausen and the Bernese plateau show a considerable decline, and Schwyz, Obwalden, Nidwalden, Aargau and Thurgau show increases of not more than 1 per cent., and Zurich 4.1 per cent. the increase for Valais is as high as 24 per cent. for Graubunden 18 3 per cent. St-Gallen 13 per cent. and the two Appenzell 17.1 per cent. and 14.2 per cent The other larger cantons of central and western Switzerland are about average with an increase of 7 to 9 per cent.

The youngest age-groups contribute almost all the increase in figures. Thus, the total number of young pigs has increased by 40,000 (19.8 per cent.) and is now 242,000. In this class, the low figure of the previous year is thus levelled up. The number is now rather above the average, nevertheless, production is not as high as in 1934-35. The number of sucking pigs, which at 177,000 is about 18,000 higher than in November 1936, is in accordance with the numbers and trend of production. On the other hand, the number of weaned piglets seems a little too high, in spite of the reduction it has undergone compared with the inquiry of November 1936. It is probable that many animals included in this group belong to an older group. But, even so, it may be said that the supply – even if diminished – will still be a little above the average. Nevertheless, a quota could prevent an increase in production as great as that which occurred in 1934-1935, when the supply could only be adjusted with losses.

The present estimate of pigs for slaughter to be marketed in a year's time must be forecast with much reserve, since it is difficult to forecast the number of sows that will actually farrow. The number of sows not in farrow (22,100) seems too low compared with the number of sucking pigs which seems too high.

Actually, after the weaning of the piglets a certain number of sows are always intended for slaughter, these are described in the enquiry as pigs for fattening. At the same time it may be that as a result of the quota, sows with litter have been put into the category of pigs for fattening.

The number of boars has not changed much, 200 less were registered bringing the number down to about 3,150.

Livestock in Czechoslovakia.

The following table gives the annual statistics of livestock.

YEARS	Horses	Cattle		Sheep	Goats	Pigs	
		Total	Cows			Total	Brood sows of 6 months and over
1937 1 January	703 835	4 595 592	2 449 614	591,807	1,071,844	3,242,158	516 544
1936	695,003	4,283,071	2 437 214	547,050	1,000,221	2,744,745	425 062
1935	701,081	4 304,529	2 500,226	510,101	957,111	3 031,846	452 115
1934	700,658	4,404 796	2 516 905	475,881	929 631	3,429,919	557 621
1933	707,579	4,341,351	2 476,570	465,093	876,771	2,621,235	445 282
1932	—	4,450 965	2 464,616	531,125	—	2 575 921	348,760
1931	—	4 457 522	2,433 830	607 612	—	2,776,215	441,821

In 1936, compared with the previous year, all classes of livestock increased as follows pigs 18.1 per cent. (for brood sows the increase is 21.5 per cent, sheep 8.2 per cent , cattle 7 3 per cent. (for cows the increase is only 0.5 per cent), goats 7.2 per cent., and horses 1.3 per cent.

Current information on livestock and derivatives.

Belgium The health of livestock continued satisfactory

Irish Free State Supplies of feed are adequate for normal requirements. Milk yields showed a marked increase as compared with the previous month but were about 8 per cent below the level of June 1936

France Except for some cases of fever in some areas, particularly in the south-east, the condition of herds was satisfactory on 1 July. Fodder supplies were ample. Milk production declined from the May levels but continued good as a result of the ample supplies of feed and the favourable temperatures.

Netherlands: In June feeding conditions for milch cows were good in all provinces.

In comparison with the corresponding month of last year, milk production in June 1937 has increased by about 2 per cent for the whole country. It was hardly different from normal in South Holland, in Zeeland and in Limburg. In other provinces milk production increased from 2 to 4 per cent.

United Kingdom: Grass continued to be plentiful during June and milk yields were well maintained.

Argentina: The health of livestock is good.

Algeria: Animals were in satisfactory state in all parts at the end of June but their condition was not as good as it has been at this period in normal years. In the south in particular, ewes had difficulty in maintaining condition and feeding lambs. They are light in weight and in south Constantine sheep are in poor condition. Pastures are dry and stubble, which now has an adequate bite, is not extensive this year. Watering was becoming difficult on the Hauts-Plateaux.

Many cases of foot-and-mouth disease have appeared in Alger and Oran and there were cases also in Constantine. The disease is mostly slight but rather serious among milk cows.

French Morocco At the end of June, livestock still found in the north plenty of pasturage. In the centre on the other hand, they found nothing more to eat than stubble or sometimes couch grass that had invaded fallow land In the south and east. almost a total drought lasted throughout June.

Union of South Africa: The southwestern areas of the Cape Province had well distributed rains during May; a good grazing year is expected and lambing was most satisfactory The northwestern areas continued dry and the grazing outlook was poor, stock, however, were in reasonably good condition and the lamb crop was most successful Owing to a shortage of rain, grazing was deteriorating in the south coastal belt while further rains were also required in the karroo areas. Stock in Bechuanaland and Griqualand West lost condition owing to the cold and dry winds Winter prospects in the border districts were good.

In Natal stock were in fairly good condition in May and grazing was plentiful but there is some danger of water shortage in the winter

The Orange Free State experienced good rains and the lamb crop was satisfactory.

Dry grazing is plentiful in the Transvaal and stock maintained satisfactory condition.

Current information on sericulture.

France Silk-worm rearing conditions were excellent up to the end of June. Temperatures were favourable at the beginning of July but mulberry leaves were somewhat too advanced for the age of silk-worms

Indo-China In Tonkin, the condition of mulberries was variable during May. It was good in some parts (Tuyên quang, Viétri, Phy tho, Phuc yên) but less satisfactory in others (Bac giang Langson, Thai binh, Nam dinh) In Annam, there were few leaves in the north at the end of May. In some southern provinces (Vinh and Binh-Dinh) the silkworms were in fairly satisfactory condition at the end of May, but in some central provinces (Quand-Nam) rearings were often unsuccessful owing to high temperatures.

Japan: Favoured by the weather, the progress of silk-worm rearing is continuing under good conditions. The crop condition of mulberries is normal

Syria and Lebanon: Conditions in May were on the whole favourable for the growth of mulberries and the rearing of silk worms; conditions for rearing in Latakia were excellent. On 1 June, the rearing situation was, in the system of the Institute, 100 in Lebanon and 130 in Latakia The quantity of eggs put into incubation in these two states, the only important silk producing states, was almost the same as last year, namely, 1,720 lbs against 1710 lbs in 1936.

TRADE

Wheat. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	May				Ten months (August 1-May 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Bulgaria	408	0	0	0	3,724	573	0	0	683	0
Hungary	918	380	0	0	12,609	5,497	0	0	8,600	0
Lithuania	0	47	0	0	0	1,243	0	0	1,273	0
Poland-Dantzig	14	146	0	0	1,120	1,054	0	0	1,165	0
Romania	...	...	...	...	1) 19,090	1) 3,354	1) 1	1) 1	3,520	1
Yugoslavia	1,429	0	0	0	10,193	3	0	0	368	0
U. S. S. R.	...	...	...	...	1) 646	1) 16,611	1) 0	1) 0	16,801	134
Canada	4,816	16,391	5	0	92,447	108,208	75	8	139,215	9
Argentina	4,547	2,254	—	—	88,634	34,692	—	—	39,378	—
Chile	...	...	...	...	1) 0	1) 1,227	1) 0	1) 0	1,314	0
India: by sea 5)	332	12	0	0	5,592	220	3	292	436	294
" : by land 5)	...	...	...	...	3) 336	3) 296	3) 101	3) 122	653	182
Iraq	...	...	...		1) 2,351	1) 135	1) 0	1) 5	197	5
Iran	...	...	...	...	1) 409	1) 378	1) 0	1) 0	709	0
Manchukuo	...	...	—	—	2) 350	2) 529	—	—	531	—
Syria & Leb.: Fr. m. t	0	86	0	0	826	153	114	6	181	6
Turkey	...	...	—	—	1) 2,465	1) 317	—	—	317	—
Algeria	...	...	...	...	1) 3,217	1) 4,587	1) 431	1) 409	5,522	653
Egypt	...	...	...	...	1) 141	1) 2	1) 0	1) 1	3	1
French Morocco	...	...		...	1) 403	1) 2,309	1) 1,325	1) 0	2,919	0
Tunis	13	26	24	8	121	2,369	642	139	2,420	183
Australia	6,014	3,468	0	0	35,824	40,856	0	0	43,935	0
Importing Countries:										
Germany	0	295	4,804	399	42	993	7,019	1,831	1,299	2,138
Austria	1	1	504	355	9	9	4,018	2,536	10	3,241
Belgo-Luxemb. E. U.	972	78	2,306	2,634	2,477	871	22,343	20,740	970	24,318
Denmark	73	0	226	409	290	35	3,313	3,925	35	5,150
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	11	0	13	80	29	44	144	80	83	84
Finland	0	0	189	137	0	0	1,248	1,228	0	1,618
France	16	260	626	1,212	1,056	7,049	7,403	14,205	8,627	16,110
Greece	0	0	1,044	991	0	0	10,849	6,806	0	8,823
Irish Free State	0	0	892	993	0	0	6,030	7,103	0	8,757
Italy	0	0	8,478	1 700	70	11	31,742	7,426	11	9,144
Latvia	0	0	122	0	0	878	478	0	926	0
Norway	0	0	726	348	0	0	3,331	2,966	0	3,383
Netherlands	0	0	743	993	54	4	9,613	9,369	4	11,365
Portugal	0	933	4	0	0	2,113	17	153	2,443	153
United Kingdom	65	100	8,401	9,981	568	636	91,742	93,088	847	114,401
Sweden	0	172	96	75	780	1,689	980	868	2,119	1,010
Switzerland	0	0	1,126	549	3	3	9,510	7,449	2	10,002
Czechoslovakia	1,034	0	0	1	4,277	4	7	1,301	4	1,302
United States	237	20	1,275	1,705	1,423	132	24,059	24,505	163	30,284
Brazil	—	—	...	...	—	—	2) 14,168	2) 14,021	—	23,285
Colombia	—	—	...	...	—	—	2) 231	...	...	...
Peru	...	...	...	...	4) 0	4) 0	4) 1,327	4) 1,271	0	2,576
Ceylon	—	—	9	6	—	—	99	88	—	100
China	20	10	110	700	726	132	1,060	3,474	160	3,734
Chosen	...	...	...	...	1) 2	1) 0	1) 50	1) 71	0	85
Taiwan	—	—	...	...	—	—	1) 7	1) 45	—	45
Indo-China	...	...	...	...	1) 0	1) 0	1) 1	1) 1	0	1
Japan	—	—	280	439	—	—	3,942	7,683	—	8,400
British Malaya	...	...	...	...	1) 1	1) 1	1) 5	1) 13	2	15
Palestine: Br. m. t	...	...	...	...	3) 0	3) 1	3) 638	3) 42	1	102
Union of South Afr.	...	...	...	...	1) 139	1) 0	1) 11	1) 21	0	25
New Zealand	...	...	...	...	1) 0	1) 0	1) 216	1) 169	0	267
Totals	**20,920**	**24,679**	**32,003**	**23,715**	**292,444**	**239,208**	**258,293**	**233,461**	**287,847**	**291,386**

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1) Up to 30 April — 2) Up to 31 March. — 3) Up to the end of February — 4) Up to 31 December. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Wheat flour. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	May				Ten months (August 1-May 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Germany	5	52	100	0	129	642	220	30	758	31
Bulgaria	1	0	0	0	84	0	0	0	0	0
Spain	—	—	—	—	—	—	—	—	—	—
France	233	303	70	102	2,505	2,774	735	1,041	3,199	1,222
Hungary	75	111	0	0	1,170	1,033	0	0	1,247	0
Italy	644	340	1	1	3,565	3,922	33	14	4,344	14
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland - Dantzig	3	203	0	0	1,448	1,832	0	0	2,163	0
Romania	...	...	...	...	1) 6	1) 2	1) 0	1) 0	2	0
Yugoslavia	7	8	0	0	108	63	0	0	74	0
U. S. S. R.	...	...	...	...	1) 1,049	1) 385	1) 43	1) 344	741	425
Canada	684	879	7	11	7,449	8,044	98	106	9,759	120
United States	714	626	2	31	6,507	5,579	61	59	6,732	88
Argentina	189	207	—	—	1,839	1,474	—	—	1,761	—
Chile	...	...	...	...	1) 0	1) 69	1) 2	1) 24	72	30
Chosen	...	...	...	...	1) 41	1) 101	1) 0	1) 0	112	0
India by sea 5)	118	28	0	2	643	355	20	9	400	12
Iraq	...	...	...	...	1) 78	1) 68	1) 0	1) 1	82	1
Iran	...	...	...	...	1) 0	1) 4	1) 0	1) 0	4	0
Japan	112	318	38	46	1,663	3,687	414	180	4,111	243
Algeria	...	...	...	...	1) 428	1) 624	1) 62	1) 77	843	89
French Morocco	...	...	...	...	1) 10	1) 4	1) 0	1) 0	4	0
Tunis	23	31	15	2	249	362	178	25	410	31
Australia	942	1,085	0	0	9,649	10,060	0	1	12,147	1
Importing Countries:										
Austria	11	1	33	66	42	7	398	654	9	757
Belgo-Luxemb. E. U	4	7	3	8	71	52	91	84	60	90
Denmark	2	1	10	8	18	19	135	171	22	217
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	52	67	0	0	355	545	0	687
Greece	0	0	1	1	0	0	12	19	0	22
Irish Free State	0	0	11	15	0	0	122	128	0	159
Norway	0	0	108	71	1	3	819	704	4	884
Netherlands	46	0	97	144	290	6	1,141	915	7	1,207
Portugal	0	0	3	9	0	0	37	91	0	97
United Kingdom	146	212	828	835	1,787	2,264	7,933	8,052	2,653	9,528
Sweden	4	1	1	0	24	11	2	1	17	1
Czechoslovakia	0	0	0	3	164	5	8	20	6	24
Haiti	—	—	17	20	—	—	204	206	—	258
Brazil	—	—	...	...	—	—	2) 651	2) 715	—	1,182
Colombia	—	—	...	...	—	—	2) 8	...	—	...
Peru	...	...	...	...	4) 0	4) 0	4) 13	4) 15	0	32
Ceylon	—	—	24	21	—	—	301	293	—	337
China	20	0	42	118	216	22	457	731	22	843
Netherl. Indies:										
Java and Madura	—	—	...	...	—	—	1) 787	1) 1,054	—	1,282
Other Provinces	—	—	...	...	—	—	1) 511	1) 483	—	595
Indo-China	...	...	20	36	1) 0	1) 0	337	339	0	395
British Malaya	...	...	...	...	1) 112	1) 96	1) 1,873	1) 1,021	127	1,344
Manchukuo	...	...	...	...	2) 4	2) 2	2) 1,780	2) 4,301	3	6,462
Palestine Br. m. t.	...	...	...	...	3) 0	3) 0	3) 474	3) 351	0	644
Syria & Leb.: Fr. m. t.	0	38	7	45	181	74	78	120	121	95
Egypt	...	...	...	...	1) 17	1) 0	1) 41	1) 51	0	79
Union of South Afr.	...	...	...	...	1) 2	1) 4	1) 8	1) 9	2	13
New Zealand	...	...	...	...	1) 1	1) 1	1) 44	1) 186	1	217
Totals	**3,983**	**4,451**	**1,490**	**1,662**	**41,550**	**43,650**	**19,786**	**23,170**	**52,019**	**29,754**

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1) Up to 30 April. — 2) Up to 31 March — 3) Up to the end of February — 4) Up to 31 December. — 5) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Total Wheat and Flour †). — Thousand centals (1 cental = 100 lb.).

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX. *)	NET IM. **)
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Germany	—	—	4,929	36	—	—	7,098	33	131	—
Austria	—	—	532	441	—	—	4,484	3,390	—	4,228
Belgo-Luxem. E. U	—	—	1,332	2,557	—	—	19,893	19,913	—	23,388
Bulgaria	410	0	—	—	3,836	573	—	—	683	—
Denmark	—	—	164	418	—	—	3,178	4,092	—	5,376
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	2	80	—	—	115	35	—	1
Finland	—	—	259	226	—	—	1,721	1,955	—	2,534
France	—	—	393	684	—	—	3,986	4,846	—	4,877
Greece	—	—	1,045	992	—	—	10,866	6,831	—	8,852
Hungary	1,017	528	—	—	14,168	6,874	—	—	10,263	—
Irish Free State	—	—	907	1,012	—	—	6,193	7,273	—	8,971
Italy	—	—	7,619	1,247	—	—	26,962	2,203	—	3,441
Latvia	—	—	122	0	—	877	478	—	926	—
Lithuania	0	47	—	—	0	1,243	—	—	1,274	—
Norway	—	—	869	442	—	—	4,422	3,901	—	4,556
Netherlands	—	—	812	1,185	—	—	10,693	10,576	—	12,963
Poland-Dantzig	18	417	—	—	3,050	3,497	—	—	4,049	—
Portugal	—	922	8	—	—	1,839	66	—	2,161	—
Romania	...		—	—	1) 19,097	1) 3,356	—	—	3,521	—
United Kingdom	—	—	9,247	10,711	—	—	99,368	100,169	—	122,720
Sweden	—	97	91	—	—	834	171	—	1,131	—
Switzerland 5)	—	—	1,126	549	—	—	9,507	7,446	—	9,999
Czechoslovakia	1,034	—	—	3	4,478	—	—	1,317	—	1,322
Yugoslavia	1,439	11	—	—	10,337	87	—	—	466	—
Totals Europe	*3,918*	*2,022*	*29,457*	*20,583*	*54,966*	*19.180*	*209.201*	*173,980*	*24.605*	*213.228*
U. S. S. R.	...	...	—	—	1) 1,987	1) 16,665	—	—	17,087	—
Canada	5,714	17,548	—	—	102,174	118,784	—	—	152,057	—
United States	—	—	88	892	—	—	14,040	17,014	—	21,262
Haiti	—	—	23	27	—	—	272	275	—	343
Argentina	4,799	2,531	—	—	91,086	36,657	—	—	41,725	—
Brazil	—	—	...	...	—	—	2) 15,036	2) 14,974	—	24,861
Chile	...	...	.	...	—	1) 1,286	1) 3	—	1,369	—
Colombia	—	—	...	...	—	—	2) 241		—	
Peru	—	—	...	...	—	—	4) 1,344	4) 1,291	—	2,619
Ceylon	—	—	41	34	—	—	501	478	—	549
China	—	—	119	847	—	—	654	4,287	—	4,668
Chosen	...	.	—	—	1) 6	1) 63	—	—	64	—
Taiwan	—	—	...	.	—	—	1) 7	1) 45	—	45
India: by sea 6)	489	47	—	—	6,420	389	—	—	659	—
» by land 6)	...	...	—	—	3) 235	3) 174	—	—	471	—
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 1,049	1) 1,405	—	1,709
Outer Provinces	—	—	...	...	—	—	1) 681	1) 644	—	793
Indo-China	—	—	...	...	—	—	1) 424	1) 405	—	527
Iraq	...	...	—	—	1) 2,454	1) 219	—	—	300	—
Iran	...	...	—	—	1) 409	1) 383	—	—	714	—
Japan	—	—	182	77	—	—	2,278	3,008	—	3,243
British Malaya	—	—	...	...	—	—	1) 1,419	1) 1,246	—	1,631
Manchukuo	—	—	...	...	—	—	2) 2,019	2) 5,202	—	8,081
Palestine: Br. m. t.	—	—	...	...	—	—	3) 1,269	3) 508	—	979
Syria & Leb.: Fr. m.t.	—	76	9	—	650	86	—	—	209	—
Turkey	...	...	—	—	1) 2,465	1) 317	—	—	317	—
Algeria	...	...	—	—	1) 3,275	1) 4,908	—	—	5,874	—
Egypt	...	...	...	...	1) 108	—	—	1) 67	—	103
French Morocco	...	...	...	...	—	1) 2,314	1) 909	—	2,924	—
Tunis	—	57	1	—	—	2,680	425	—	2,741	—
Union of South. Afr.	...	...	...	...	1) 120	—	—	1) 31	—	40
Australia	7,270	4,915	—	—	48,689	54,269	—	—	60,130	—
New Zealand	—	—	...	...	—	—	1) 272	1) 416	—	554
Totals	**22,190**	**27,196**	**29,920**	**22,460**	**315,244**	**258,374**	**252,044**	**225,276**	**311,246**	**285,235**

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*) Excess of exports over imports. — **) Excess of imports over exports.
†) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333.333 centals of grain.
1) Up to 30 April — 2) Up to 31 March — 3) Up to the end of February. — 4) Up to 31 December. — 5) Wheat only — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma and exclude the direct trade of Burma with other foreign countries.

Rye. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries.										
Germany	0	0	440	63	1	820	1,050	541	821	691
Bulgaria	11	77	0	0	254	121	0	0	121	0
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	18	44	0	200	333	383	331	333	331
Hungary	370	9	0	0	2,521	145	0	0	210	0
Latvia	0	228	62	0	623	1,640	62	0	2,041	0
Lithuania	0	104	0	0	47	1,835	0	0	1,974	0
Poland-Dantzig	39	342	0	0	4,540	4,256	0	0	4,788	0
Romania	593	9	0	0	1,954	304	0	0	348	0
Sweden	0	56	0	0	4	845	166	19	903	19
Yugoslavia	10	0	0	0	82	0	0	0	0	0
U. S. S. R.	...	...	...	...	1) 1,552	1) 1,123	1) 0	1) 0	2,288	—
Canada	341	554	0	0	1,556	655	1	0	1,375	0
Argentina	169	460	—	—	3,252	1,884	—	—	2,273	—
Algeria	...	...	...	...	1) 20	1) 20	1) 0	1) 0	27	0
Importing Countries:										
Austria	2	1	287	108	6	16	3,205	829	19	1,004
Belgo-Luxemb. E.U.	0	0	5	133	38	28	1,076	2,982	28	3,680
Denmark	0	0	178	263	0	1	3,549	3,392	1	4,174
Finland	0	0	288	294	0	0	1,115	1,204	0	1,305
France	0	0	0	0	0	0	23	21	0	28
Greece	0	0	0	0	0	0	0	0	0	0
Italy	0	0	9	19	0	0	126	168	0	179
Norway	0	0	374	92	0	0	2,698	2,591	0	3,358
Netherlands	88	0	111	173	1,980	76	1,023	1,277	76	1,747
United Kingdom	0	0	9	23	...	...	...	...	4	122
Switzerland	0	0	10	55	0	0	592	278	0	355
Czechoslovakia	0	0	1	2	3	3	12	15	4	18
United States	104	0	0	0	106	3	2,045	982	4	1,221
Palestine: Br. m. t.	—	—	...	...	—	—	2) 69	2) 46	—	90
French Morocco	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
Totals	**1,732**	**1,858**	**1,818**	**1,225**	**18,739**	**14,108**	**17,185**	**14,676**	**17,638**	**18,530**

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1) Up to 30 April. — 2) Up to the end of February.

COUNTRIES	May				Ten months (August 1-May 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Barley. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	0	0	0	0	599	43	0	0	43	0
Denmark	30	82	41	0	1,661	1,538	1,409	75	1,539	76
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	220	24	0	0	605	256	0	361	282	361
Latvia	0	0	0	0	0	244	0	0	244	0
Lithuania	0	11	0	0	0	323	18	0	328	0
Poland - Dantzig	15	719	0	0	6,333	7,091	0	0	7,728	0
Romania	...	...	...	...	1) 12,425	1) 3,614	1) 0	1) 0	4,066	0
Sweden	0	0	0	0	2	2	12	0	2	0
Czechoslovakia	0	0	0	0	1,163	780	1	2	806	2
Yugoslavia	17	0	0	0	168	2	1	25	2	25
U. S. S. R.	...	...	...	...	1) 188	1) 13,476	1) 0	1) 0	14,125	0
Canada	776	392	0	0	7,807	2,109	0	0	3,684	0
United States	30	360	661	32	2,176	4,126	7,179	134	4,710	337
Argentina	207	566	—	—	6,685	3,666	—	—	4,420	—
Chile	...		—	—	1) 1,451	1) 370	—	—	616	—
India: by sea 4)	18	0	11	1	206	3	34	89	41	119
Iran	...	.	..	...	1) 361	1) 118	1) 0	1) 0	154	0
Iraq	...	..	..	.	1) 5,273	1) 1,775	1) 0	1) 0	3,312	0
Manchukuo	...		—	—	2) 19	2) 15	—	—	25	—
Syria & Leb.: Fr. m t.	11	213	7	0	1,153	713	17	6	927	6
Turkey	...		—	—	1) 1,246	1) 389	—	—	389	—
Algeria	...	..		.	1) 1,380	1) 665	1) 530	1) 426	789	575
Egypt	..			.	1) 495	1) 0	1) 3	1) 12	1	14
French Morocco	...	.		...	1) 4,251	1) 1,914	1) 0	1) 0	3,193	0
Union of South Afr	..	...	...	.	1) 0	1) 0	1) 0	1) 0	1	0
Australia	42	130	0	0	1,199	861	0	0	1,240	0
Importing Countries:										
Germany	0	0	433	438	0	0	2,452	1,123	0	1,533
Austria	0	0	100	108	1	1	803	1,024	2	1,202
Belgo-Luxemb E U.	52	29	537	512	636	364	10,088	8,475	457	9,251
Estonia	0	0	4	11	0	0	56	30	0	33
Finland	0	0	6	8	0	0	32	77	0	82
France	0	0	71	414	5	0	5,650	4,192	0	5,064
Greece	0	0	3	26	0	0	155	151	0	153
Irish Free State	0	0	87	45	1	11	448	226	11	453
Italy	0	0	33	28	0	0	719	976	0	1,034
Norway	0	0	47	21	0	0	487	321	0	336
Netherlands	2	1	369	375	468	213	4,009	5,362	214	6,605
United Kingdom	1	0	1,473	954	106	7	18,334	12,236	8	22,254
Switzerland	0	0	190	83	0	0	2,624	2,315	0	2,547
Ceylon	—	—	2	0	—	—	10	15	—	16
Chosen	...	...	..	..	1) 10	1) 1	1) 1	1) 3	1	5
Indo-China	...	...	...	..	1) 0	1) 0	1) 0	1) 0	0	0
Japan	—	—	0	0	—	—	299	70	—	138
Palestine: Br m. t	...	..	...	...	3) 0	3) 1	3) 564	3) 346	1	526
Tunis	3	6	0	0	3	1,655	838	46	1,666	130
New Zealand	..	...	..	...	1) 0	1) 0	1) 101	1) 193	0	315
Totals	**1,424**	**2,533**	**4,075**	**3,056**	**58,076**	**46,346**	**56,874**	**45,311**	**55,027**	**53,192**

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1) Up to 30 April — 2) Up to 31 March. — 3) Up to the end of February. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Oats. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	May				Ten months (August 1-May 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Bulgaria	1	0	0	0	65	0	0	0	0	0
Hungary	1	53	0	0	167	60	0	0	107	0
Lithuania	0	26	0	0	0	516	47	0	518	0
Poland-Dantzig	14	162	0	0	1,474	2,223	0	0	2,595	0
Romania	...	...	...	...	1) 463	1) 353	1) 0	1) 0	386	0
Czechoslovakia	42	0	0	0	891	82	2	13	82	13
Yugoslavia	15	0	0	0	59	73	0	0	73	0
U. S. S. R.	...	...	...	...	1) 114	1) 2,987	1) 5	1) 8	3,282	8
Canada	70	272	0	0	1,831	3,144	1	0	4,074	116
United States	4	3	2	7	15	85	49	21	204	22
Argentina	677	164	—	—	7,136	2,734	—	—	3,092	—
Chile	...	...	—	—	1) 1,132	1) 503	—	—	670	—
Chosen	...	...	...	...	1) 40	1) 0	1) 1	1) 4	1	4
India: by sea 2)	1	0	—	—	5	3	—	—	5	—
French Morocco	...	...	...	...	1) 172	1) 131	1) 0	1) 0	170	0
Tunis	5	4	0	0	15	210	7	0	215	0
Union of South Afr.	...	...	...	...	1) 30	1) 6	1) 0	1) 0	7	0
Australia	2	4	0	0	98	91	4	1	97	2
New Zealand	...	...	...	..	1) 2	1) 1	1) 7	1) 19	2	20
Importing Countries:										
Germany	0	0	193	3	1	1	591	256	1	463
Austria	0	0	95	67	0	0	611	494	1	616
Belgo-Luxemb. E. U.	0	0	98	129	4	0	726	797	0	898
Denmark	1	18	73	52	189	436	1,329	102	440	142
Estonia	0	0	21	12	0	0	113	45	0	45
Finland	0	0	8	82	0	0	111	706	0	769
France	0	2	238	14	5	7	2,201	377	7	472
Greece	0	0	0	5	0	0	93	84	0	92
Italy	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	33	62	1	3	515	3,063	4	3,383
Latvia	0	6	0	0	0	130	11	0	130	0
Norway	0	0	11	0	1	1	47	6	1	6
Netherlands	27	44	117	32	1,115	217	465	409	221	512
United Kingdom	1	2	61	80	27	36	1,659	2,154	41	2,865
Sweden	0	1	156	29	55	177	397	249	180	279
Switzerland	0	0	310	220	0	0	4,014	3,718	0	4,415
Ceylon	—	—	1	0	—	—	12	11	—	13
Indo-China	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
Japan	—	—	50	0	—	—	51	49	—	50
Syria and Lebanon: Fr. m. t	0	0	0	0	3	1	1	2	1	2
Algeria	...	...	...	...	1) 801	1) 149	1) 25	1) 38	259	46
Egypt	—	—	...	...	—	—	1) 1	1) 1	—	2
Totals	**861**	**761**	**1,467**	**794**	**15,911**	**14,360**	**13,096**	**12,627**	**16,866**	**15,255**

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1) Up to 30 April. — 2) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	May				Seven months (November 1-May 31)				Twelve months (Nov. 1-Oct. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries.										
Bulgaria	178	293	0	0	1,984	678	0	0	1,896	0
Hungary	414	2	0	1,030	1,707	32	10	6,121	40	7,305
Romania	...	...	...	...	1) 10,631	1) 10,794	1) 0	1) 0	18,831	0
Yugoslavia	1,378	6	0	0	6,289	828	0	0	1,445	0
U. S. S. R.	...	...	...	...	1) 0	1) 12	1) 1	1) 0	12	5
Haiti	0	0	—	—	2	2	—	—	3	—
Santo Domingo	...	...	—	—	1) 167	1) 101	—	—	307	—
Argentina	19,807	10,487	—	—	128,626	88,269	—	—	172,041	—
Brazil	...	...	—	—	2) 27	2) 71	—	—	113	—
Chile	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
China	125	0	—	—	189	100	—	—	189	—
India: by sea 5)	0	0	—	—	1	2	—	—	2	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 2,782	1) 1,201	—	—	2,485	—
Outer Provinces	...	...	—	—	1) 699	1) 211	—	—	765	—
Indo-China	458	665	—	—	4,021	4,072	—	—	10,542	—
Iraq	...	...	—	—	1) 6	1) 5	—	—	6	—
Manchukuo	...	...	—	—	2) 1,485	2) 590	—	—	1,716	—
Syria and Lebanon: Fr. m. t.	0	21	0	0	4	52	1	1	78	2
Turkey	...	...	—	—	1) 4	1) 0	—	—	0	—
Egypt	...	...	...	...	1) 49	1) 1	1) 0	1) 5	2	9
Madagascar	...	...	...	...	1) 22	1) 45	1) 0	1) 0	356	—
French Morocco	...	...	...	...	1) 390	1) 533	1) 0	1) 0	1,391	0
Union of South Afr.	1	3	..	...	47	1,440	1) 0	1) 3	1,446	5
Importing Countries:										
Germany	0	0	2,788	519	0	0	8,911	3,102	0	4,174
Austria	0	0	740	550	0	0	4,356	4,222	0	7,024
Belgo - Luxemburg Econ. Union	32	65	1,458	1,507	310	360	13,032	11,776	507	19,404
Denmark	0	0	1,116	211	0	0	10,416	2,299	0	4,521
Spain	—	—	—	—	—	—	—	—		
Estonia	0	0	66	0	0	0	241	0	0	0
Finland	0	0	52	277	0	0	1,072	1,411	0	2,031
France	3	0	645	871	12	1	9,859	9,209	3	15,328
Greece	0	0	86	201	0	0	840	990	0	1,519
Irish Free State	0	0	670	379	0	0	3,718	2,547	0	4,806
Italy	0	0	194	331	0	0	1,175	2,846	0	4,001
Latvia	0	0	0	0	0	0	118	0	0	0
Norway	0	0	243	177	0	0	2,097	1,454	0	2,759
Netherlands	0	0	1,327	1,286	0	0	13,454	12,217	2	19,688
Poland-Dantzig	0	0	0	0	0	0	1	0	0	0
Portugal	0	0	14	52	0	2	107	254	2	388
United Kingdom	193	138	5,287	4,610	1,377	730	51,454	47,071	1,479	79,085
Sweden	0	0	403	74	0	0	2,663	752	0	1,422
Switzerland	0	0	69	80	0	0	1,794	1,137	0	1,742
Czechoslovakia	18	0	151	212	18	0	637	1,255	0	2,345
Canada	82	4	471	225	190	45	7,472	1,532	62	4,723
United States	6	42	4,821	525	43	101	27,460	5,248	295	13,732
Peru	...	...	...	...	4) 0	4) 0	4) 0	4) 11	0	45
Chosen	...	...	...	...	1) 17	1) 1	1) 174	1) 209	3	599
Japan	—	—	858	884	—	—	4,410	3,708	—	6,456
Palestine: Brit. m. t.	...	...	...	...	3) 0	3) 21	3) 209	3) 47	40	154
Algeria	...	...	...	...	1) 65	1) 12	1) 45	1) 28	30	93
Tunis	0	0	1	0	0	5	206	0	5	142
Australia	0	0	0	0	0	0	4	21	1	21
New Zealand	...	...	...	...	1) 0	1) 0	1) 14	1) 26	0	57
Totals	**22,695**	**11,726**	**21,460**	**14,001**	**161,164**	**110,317**	**165,952**	**119,502**	**216,095**	**203,580**

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1) Up to 30 April. — 2) Up to 31 March. — 3) Up to the end of February. — 4) Up to 31 December. — 5) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	May				Five months (January 1-May 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:	**Rice.** — Thousand centals (1 cental = 100 lb.).									
Spain	—	—	—	—	—	—	—	—	—	—
Italy	204	207	2	0	1,710	1,096	7	9	3,147	28
United States	21	10	206	84	321	102	937	349	235	1,151
Brazil	...	...	—	—	2) 73	2) 313	—	—	1,176	—
Chosen	...	...	...	...	1) 35	1) 44	1) 0	1) 1	153	3
Taiwan	...	...	...	...	1) 0	1) 0	1) 0	1) 0	1	0
India: by sea	4)	2,547	4)	317	2) 11,862	15,160	2) 1	1,758	29,931	3,236
» : by land	...	...	...	...	3) 98	3) 106	3) 363	3) 364	513	1,385
Indo-China	2,242	3,942	...	...	13,626	16,525	1) 9	1) 12	38,572	69
Iran	...	...	...	...	1) 687	1) 566	1) 0	1) 0	1,251	0
Iraq	...	...	...	...	1) 3	1) 2	1) 0	1) 0	13	1
Siam	1,225	3,200	—	—	9,603	15,405	—	—	35,249	—
Egypt	...	...	...	...	1) 1,797	1) 856	1) 1	1) 1	3,070	2
Importing Countries:										
Germany	20	68	303	328	86	168	1,461	1,344	561	3,805
Austria	0	0	53	47	0	0	288	211	0	604
Belgo-Luxemb. E. U.	49	17	192	91	254	56	774	376	220	1,216
Denmark	0	0	21	56	0	0	70	164	0	182
Estonia	—	—	3	2	—	—	7	6	—	22
Finland	—	—	51	26	—	—	149	92	—	313
France	94	39	1,368	2,000	505	130	8,531	5,617	376	18,870
Greece	0	0	62	53	0	0	331	243	0	665
Hungary	0	0	40	15	0	0	143	155	0	349
Irish Free State	0	0	7	9	0	0	30	41	0	83
Latvia	0	0	3	2	0	0	10	6	0	16
Lithuania	0	0	0	0	0	0	5	3	0	9
Norway	0	0	17	10	0	0	59	49	0	101
Netherlands	299	134	680	814	1,277	602	2,380	1,824	2,437	4,414
Poland-Dantzig	10	12	323	280	15	29	424	452	211	1,207
Portugal	0	0	8	31	0	0	16	35	0	455
Romania	—	—	...	...	—	—	1) 157	1) 150	—	654
United Kingdom	15	16	313	420	91	71	1,272	1,164	202	2,490
Sweden	—	—	31	118	—	—	78	135	—	234
Switzerland	0	0	16	45	0	0	197	200	0	521
Czechoslovakia	0	0	141	121	0	0	253	293	0	1,138
Yugoslavia	0	0	25	25	0	0	182	181	0	492
U. S. S. R.	...	...	...	...	1) 4	1) 8	1) 589	1) 530	21	1,159
Canada	2	4	78	117	15	7	265	305	28	783
Haiti	—	—	5	3	—	—	15	14	—	44
Chile	—	—	...	...	—	—	1) 134	1) 155	—	356
Colombia	—	—	...	...	—	—	2) 15	2) 56	—	267
Peru	...	...	...	...	...	...	...	...	0	737
Ceylon	0	0	1,040	868	0	2	5,504	5,243	2	11,926
China	79	39	735	1,582	363	234	1,900	3,182	592	6,842
Netherlands Indies:										
Java and Madura	...	...	...	...	1) 57	1) 19	1) 30	1) 148	263	190
Outer Provinces	...	...	...	...	1) 89	1) 55	1) 1,019	1) 1,839	245	4,915
Japan	11	14	3	7	98	67	32	158	234	1,221
British Malaya	...	...	...	...	1) 932	1) 1,291	1) 4,867	1) 5,036	4,091	16,150
Manchukuo	...	...	...	...	2) 8	2) 11	2) 345	2) 656	39	2,360
Palestine: Br. m. t.	...	...	...	...	3) 24	3) 0	3) 82	3) 43	0	396
Syria & Leb.: Fr.m.t.	0	0	54	61	0	0	213	145	0	412
Turkey	—	—	...	...	—	—	1) 0	1) 0	—	7
Algeria	...	...	...	...	1) 15	1) 2	1) 389	1) 116	11	480
Madagascar	...	...	...	...	1) 34	1) 24	1) 0	1) 27	54	65
French Morocco	—	—	...	...	—	—	1) 235	1) 42	—	187
Tunis	0	0	19	4	0	0	242	16	0	114
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 434	1) 392	0	1,266
Australia	60	14	5	6	142	87	26	29	267	72
New Zealand	...	...	...	..	1) 0	1) 0	1) 25	1) 20	0	71
Totals	**5) 4,331**	**10,263**	**5) 5,804**	**7,542**	**43,824**	**53,038**	**34,496**	**33,387**	**123,165**	**93,735**

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1) Up to 30 April, — 2) Up to 31 March. — 3) Up to the end of February. — 4) The available figures for the trade of April 1937 (exports 620 and imports 3,273 thousand centals) and of May 1937 (exports 71 and imports 3,246 thousand centals) include those of trade with Burma, which from 1st April 1937 is treated in commercial statistics as a foreign country. — 5) Not including India.

COUNTRIES	May				Five months (January 1-May 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
	Linseed. — Thousand centals (1 cental = 100 lb.)									
Exporting Countries										
Lithuania	0	11	0	0	80	149	0	0	525	0
Romania					1) 3	1) 2	1) 0	1) 0	39	0
Argentina	2 301	1 959	—	—	21 498	13 660	—	—	32 557	—
China	9	95	—	—	125	562	—	—	812	—
India by sea 4)	525	851	0	0	1 501	2 652	0	0	6 959	0
» by land 4)	—	—			—	—	2) 6	2) 22	—	308
Iraq			—	—	1) 8	1) 0	—	—	24	—
French Morocco			—	—	1) 36	1) 24	—	—	211	
Tunis	0	0	0	0	0	0	1	0	0	0
New Zealand					1) 4	1) 1	1) 0	1) 0	9	0
Importing Countries										
Germany	0	0	648	761	0	0	1 823	2 310	0	4 824
Austria	0	2	3	3	0	2	5	6	2	13
Belgo Luxemb. E. U.	1	3	156	96	55	86	1 299	1 088	124	2 419
Denmark	—	—	25	57	—	—	227	202	—	449
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	2	0	0	2	8	2	0	11	3	20
Finland	0	0	18	14	0	0	70	71	0	136
France	0	0	338	400	6	2	2 966	3 158	4	6 179
Greece	0	0	5	4	0	0	40	18	0	71
Hungary	0	0	3	0	1	0	5	4	0	4
Irish Free State	0	0	11	13	0	0	49	46	0	120
Italy	0	0	118	67	0	0	682	478	0	1 194
Latvia	0	0	2	4	43	25	11	29	47	59
Norway	0	0	59	18	0	0	290	224	0	473
Netherlands	3	2	661	385	81	68	3 467	2 920	101	7 287
Poland Dantzig	0	58	0	0	0	69	0	0	78	0
United Kingdom	0	0	307	502	0	0	3 049	2 514	1	6 088
Sweden	—	—	228	80	—	—	574	336	—	808
Czechoslovakia	0	0	77	48	0	0	260	218	0	536
Yugoslavia	0	0	14	0	0	0	90	47	0	95
Canada	0	0	159	17	3	4	254	347	101	726
United States	—	—	2 051	696	—	—	8 340	3 403	—	8 604
Japan	0	0	12	28	0	0	98	110	0	284
Palestine Br. m. t.	—	—			—	—	2) 10	2) 4	—	27
Algeria					1) 0	1) 1	1) 25	1) 1	3	2
Egypt	. .			. .	1) 2	1) 1	1) 0	1) 1	4	7
Australia	0	0	12	70	0	0	350	220	0	515
Totals	**2,841**	**2,981**	**4,907**	**3,265**	**23,454**	**17,310**	**• 23,990**	**17,788**	**41,604**	**41,248**

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1) Up to 30 April — 2) Up to the end of February — 3) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

Cotton. — Thousand centals (1 cental = 100 lb.)

COUNTRIES	May				Ten months (August 1-May 31)				Twelve months (August 1 July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936 37	1935 36	1936 37	1935 36	1935-36	1935 36
Exporting Countries										
United States	1 685	1 840	155	110	26 609	28 960	991	621	31,337	785
Haiti	9	17	—	—	114	112	—	—	126	—
Santo Domingo			—	—	1) 2	1) 0	—	—	0	—
Argentina	15	126	—	—	626	692	—	—	1,030	—
Brazil			—	—	2) 2 910	2) 1 750	—	—	3,549	—
Peru			—	—	4) 864	4) 976	—	—	1 884	—
India by sea 5)	1 663	1 621	230	155	14 628	12 413	1 494	1 019	14 833	1,275
» by land 5)			—		3) 7	3) 1	—	-	6	—
Netherlands Indies										
Java and Madura			—	—	1) 23	1) 17	—	—	18	—
Iraq					1) 36	1) 19	1) 2	1) 1	19	1
Iran					1) 321	1) 239	1) 0	1) 0	503	0
Syria and Lebanon										
[illegible]	4	4	0	0	78	74	0	0	79	0
Turkey				—	1) 285	1) 366	—	—	469	—
Egypt				—	1) 7 595	1) 6 617	—	—	8 100	—
French Morocco					1) 1	1) 0	1) 1	1) 1	0	1
Union of South Afr.					1) 4	1) 7	1) 7	1) 0	10	0
Importing Countries										
Germany	0	3	460	500	2	572	4 781	6 448	574	7 265
Austria	0	0	73	68	1	1	748	777	1	877
Belg.-Luxemb. E. U.	78	46	284	191	609	532	2 502	2 026	653	2 378
Bulgaria	0	0	22	16	0	0	161	168	0	180
Denmark	—	—	25	20	—	—	172	144	—	177
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	12	9	0	0	10	99	0	119
Finland	0	0	11	14	1	0	246	244	0	279
France	33	26	377	552	341	295	6 254	6 234	332	7,139
Greece	0	0	5	10	0	10	57	99	10	110
Hungary	0	0	48	52	0	0	469	462	0	560
Italy	0	0	307	24	0	0	3 001	1 748	0	2 130
Latvia	0	0	12	6	0	0	100	83	0	97
Lithuania	0	0	4	3	0	0	34	26	0	32
Norway	0	0	9	7	0	0	68	62	0	70
Netherlands	1	1	133	62	14	5	1 132	862	6	1 001
Poland Dantzig	0	0	126	133	2	4	1 332	1 375	4	1 615
Portugal	—	—	53	25	—	—	489	435	—	484
Rumania					1) 0	1) 0	1) 232	1) 120	0	162
United Kingdom	49	62	1 257	1 093	498	550	13 937	12 484	748	15 169
Sweden	—	—	51	46	—	—	622	563	—	672
Switzerland	0	0	41	39	0	1	640	477	1	549
Czechoslovakia	4	3	218	174	45	42	2 130	1 875	48	2 129
Yugoslavia	0	0	40	31	1	0	353	308	0	375
U. S. S. R.					1) 111	1) 0	1) 390	1) 476	0	512
Canada	—	—	155	99	—	—	1 422	1 224	—	1,357
Chile	—	—			—	—	1) 43	1) 19	—	29
Colombia	—	—			—	—	46		—	
Ceylon	0	0	2	3	0	0	14	19	0	22
China	95	26	43	194	1 097	831	412	797	892	916
Chosen					1) 0	1) 0	1) 27	1) 19	0	20
Taiwan	—	—			—	—	1) 7	1) 5	—	6
Indo China					1) 11	1) 8	1) 188	1) 65	9	111
Japan	60	58	2 425	1 810	598	455	19 031	14 659	582	18 088
Manchukuo					2) 2	2) 0	2) 481	2) 293	0	428
Algeria					1) 2	1) 1	1) 4	1) 4	1	5
Australia	0	0	6	4	0	1	44	74	1	86
Totals	**3,696**	**3,833**	**6,584**	**5,450**	**57,438**	**55,551**	**64,174**	**56,415**	**65,825**	**67,211**

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1) Up to 30 April — 2) Up to 31 March — 3) Up to the end of February — 4) Up to 31 December — 5) From 1st April 1937 the Indian statistics include the trade of India with Burma and exclude the direct trade of Burma with other foreign countries

COUNTRIES	May				Nine months (Sept 1-May 31)				Twelve months (Sept 1-Aug 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936 37	1935 36	1936 37	1935 36	1935 36	1935 36
Exporting Countries	**Wool.** — Thousand lb									
Hungary	9	37	148	152	789	549	842	1 376	952	1 900
Irish Free State	697	809	88	79	11 821	11 517	613	333	16,098	569
Argentina a)	17 778	17 375	—	—	221 942	207 859	—	—	234 396	—
Argentina b)	2 972	3 721	–	—	34 996	37 924	—	—	44 677	–
Chile					1) 24 705	1) 16 971	1) 487	1) 902	19 004	1 504
Peru			—	–	4) 4 323	4) 3 569	—	—	12 445	—
China	1 984	1 493	—	—	32 287	25 329	—	—	31 350	—
India by sea 5)	5 545	4 458	844	891	56 236	45 739	5 664	5 811	55 923	6 784
» by land 5)	—	–			—	–	3) 10 834	3) 6 021	—	16 462
Iraq					1) 8 726	1) 6 266	1) 49	1) 7	11 338	35
Iran					1) 11 327	1) 11 352	1) 0	1) 0	19 837	0
Manchukuo					2) 5 093	2) 3 521	2) 979	2) 783	5 968	1 321
Palestine Br m t					3) 143	3) 88	3) 4	3) 13	205	20
Syria & Leb Fr m t	902	231	240	13	6 702	3 267	492	172	4 930	223
Algeria					1) 12 622	1) 7 663	1) 1 689	1) 849	14 793	2 079
Egypt					1) 3 876	1) 2 452	1) 35	1) 62	4 096	64
French Morocco					1) 5 864	1) 1 444	1) 31	1) 20	3 739	57
Tunis	2 094	240	26	73	6 543	840	168	373	1 107	518
Un of S Africa a)	22 705	14 077			231 261	197 147	1) 115	1) 97	213 150	97
Un of S Africa b)	780	53			7 077	5 007	1) 1 753	1) 1 512	6 512	2 174
Australia a)	40 991	35 248	503	597	709 174	682 595	2 716	7 875	732 907	9 222
Australia b)	5 247	4 434	2	20	52 219	50 360	60	110	64 627	157
New Zealand a)	27 829	34 926			222 904	253 325	1) 99	1) 90	262 902	90
New Zealand b)	8 497	6 940			36 374	57 181	1) 4	1) 13	52 812	13
Importing Countries										
Germany a)	0	9	22 130	25 001	234	366	122 626	133 870	395	182 850
Germany b)	0	134	3 223	2 732	194	1 087	29 150	23 515	1 146	35 991
Austria	51	7	1 975	2 454	130	198	15 611	18 750	251	23 671
Belgo Luxemb a)	11 720	6 801	32 298	25 726	82 918	58 458	229 264	186 913	68 859	220 794
Econ Un b)	2 068	2 046	342	287	22 099	20 119	5 792	4 083	26 546	5 437
Bulgaria	0	0	132	300	0	0	1 076	1 100	0	1 612
Denmark	73	110	758	582	364	306	4 731	3 893	392	4 921
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	88	55	0	0	578	712	0	895
Finland	7	0	646	520	245	203	5 165	4 299	214	5 692
France	5 902	2 355	31 870	40 164	59 421	41 108	234 308	292 186	57 431	362 071
Greece	419	254	425	996	1 702	992	5 849	8 294	1 676	11 050
Italy a)	0	0	9 068	2 745	0	209	50 887	30 598	212	39 256
Italy b)	2	2	787	540	1 307	26	4 674	7 112	42	8 871
Latvia	0	0	181	170	0	0	1 354	1 435	0	2 006
Lithuania	0	0	68	62	2	0	595	637	0	891
Norway	150	115	260	205	1 252	842	2 238	2 191	1 111	2 820
Netherlands a)	265	216	631	509	4 400	2 414	5 009	5 251	3 499	6 975
Netherlands b)	68	79	472	260	862	1 085	5 346	4 019	1 235	5 110
Poland Dantzig	13	11	3 909	4 259	143	154	41 011	37 066	165	44 401
Portugal	236	13	481	520	2 158	829	2 683	2 659	1 210	3 042
Romania					1) 928	1) 247	1) 1 219	1) 891	306	1 056
United Kingdom	31 568	27 417	88 245	107 152	236 976	245 863	679 663	735 008	321 201	879 321
Sweden	—	—	1 843	1 698	—	—	16 729	16 105	—	20 324
Switzerland	20	42	853	1 276	225	163	13 636	11 572	256	15 973
Czechoslovakia	77	306	3 316	4 954	304	844	33 989	34 174	1 074	43 222
Yugoslavia	49	359	750	1 122	1 005	3 532	6 468	6 654	4,958	9 509
U S S R a)					1) 0	1) 0	1) 39 813	1) 42 986	0	49 077
U S S R b)					1) 0	1) 0	1) 13 933	1) 9 169	0	14 667
Canada	90	414	1 784	2 800	6 365	6 883	18 973	16 766	8 543	22 520
United States	0	0			11	22	1) 277 686	1) 173 524	24	241,899
Japan	0	137	46 478	28 521	271	883	215 223	232 090	1 102	261,981
Totals	**190,808**	**164,869**	**254,864**	**257,437**	**2,130,520**	**1,998,748**	**2,111,933**	**2,073,941**	**2,315,616**	**2,571,194**

a) = Wool greasy — b) Wool, scoured — 1) Up to 30 April — 2) Up to 31 March — 3) Up to the end of February — 4) Up to 31 December — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

Butter. — Thousand lb.

COUNTRIES	MAY				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	22	752	0	2	2,672	1,260	4	4	7,802	13
Bulgaria	0	0	0	0	4	0	0	0	73	0
Denmark	30,040	30,334	0	0	136,502	130,073	0	9	322,328	185
Estonia	1,947	1,594	0	0	8,170	5,933	0	0	24,152	0
Finland	3,285	2,463	0	0	14,449	12,405	0	0	30,836	0
Hungary	822	734	0	0	5,518	2,789	0	0	10,401	0
Irish Free State	5,024	7,822	0	0	7,538	11,365	1,444	0	58,032	11
Latvia	3,501	3,937	0	0	13,091	11,936	0	0	38,118	0
Lithuania	1,964	1,504	0	0	7,617	6,365	0	0	32,252	0
Norway	101	0	0	0	245	351	0	0	423	0
Netherlands	14,226	15 197	0	2	48,259	51,774	18	31	132,686	71
Poland-Dantzig	152	1,391	0	0	3,717	6,821	0	0	24,046	0
Romania	...	...	...	...	1) 53	1) 57	1) 0	1) 0	218	0
Sweden	3,327	3,095	0	0	18,380	14,249	0	412	42,126	414
Yugoslavia	11	4	—	—	51	11	—	—	269	—
U. S. S. R.	...	...	...	..	1) 3,155	1) 1,770	1) 22	1) 295	51,097	15,679
Argentina	1,279	152	—	—	13,361	9,769	—	—	22,639	—
Chile	...	..	..	...	1) 7	1) 11	1) 0	1) 0	31	0
Syria & Leb.: Fr. m. t.	35	223	11	31	152	293	82	99	750	161
Turkey	...	...	—	—	1) 2	1) 2	—	—	33	—
Union of South Afr.	..		.	...	1) 6,695	1) 6,537	1) 0	1) 0	9,273	0
Australia	16,797	10,538	0	0	85,458	99,111	0	2	185,672	4
New Zealand	14,143	13,702	—	—	161,873	130,461	—	—	313,168	—
Importing Countries:										
Germany	0	0	12 738	12,549	0	0	65,233	65,526	0	166,245
Belgo Luxemb. E. U.	7	7	15	265	18	29	2,881	6,942	68	8,139
Spain	—	—	—	—	—	—	—	—	—	—
France	496	849	139	108	2,295	2,507	600	3,318	12,679	4,251
Greece	—	—	37	31	—	—	240	258	—	780
Italy	229	99	51	35	569	357	4,548	172	1,107	864
Portugal	9	0	0	20	35	0	26	183	11	340
United Kingdom	613	595	91,876	102 255	6,277	4,641	435,231	451,275	9,237	1,095,624
Switzerland	0	0	15	22	2	2	4,985	1,440	7	3,223
Czechoslovakia	0	0	657	227	838	2	683	229	379	496
Canada	42	35	2	55	179	152	49	106	5,130	119
United States	66	88	399	225	408	317	9,367	4,513	825	9,872
Peru	..	.	..	..	...	..	...	...	26	467
Ceylon	—	—	55	42	—	—	317	306	—	805
China	—	—	60	51	—	—	478	423	—	939
India: by sea 4)	46	11	66	79	137	106	414	437	218	944
» : by land 4)	—	—	..	..	—	—	3) 1,812	3) 1 634	—	5,022
Netherlands Indies:										
Java and Madura	—	—	..	.	—	—	1) 2,568	1) 2 624	—	9,196
Outer Provinces	—	—	...	...	—	—	1) 1,120	1) 1,045	—	3,078
Indo-China	...	..	...	...	1) 0	1) 2	1) 284	1) 207	4	912
Iraq	...	...	...	...	1) 7	1) 0	1) 9	1) 4	2	13
Iran	...	...	...	...	1) 0	1) 0	1) 0	1) 7	2	4
Japan	0	304	1,032	2	13	586	1,164	7	688	13
British Malaya	..	..	...	...	1) 205	1) 214	1) 1,834	1) 1,378	631	[illegible]
Manchukuo	—	—	..	...	—	—	2) 71	2) 26	—	137
Palestine: Br. m. t.	—	—	..	..	—	—	3) 891	3) 754	—	5,494
Algeria	...	..	...	...	1) 2	1) 2	1) 1 409	1) 1,186	9	4,394
Egypt	...	..	...	...	1) 7	1) 29	1) 351	1) 342	42	1,316
French Morocco	—	—	...	.	—	—	1) 1,314	1) 1,123	—	4,019
Tunis	0	0	212	174	0	2	869	930	4	2,026
Totals	**98,184**	**95,430**	**107,365**	**116,175**	**547,961**	**513,291**	**540,318**	**547,626**	**1,337,494**	**1,349,4[illegible]**

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1) Up to 30 April. — 2) Up to 31 March — 3) Up to the end of February. — 4) From 1st April 1937, the Indian Statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cheese. — Thousand lb.

COUNTRIES	MAY				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	831	1,047	227	229	4,116	3,988	862	809	8,620	1,878
Bulgaria	132	170	0	0	1,213	1,627	0	0	4,206	0
Denmark	1,678	2,130	2	2	8,613	9,330	13	9	21,008	20
Estonia	44	4	0	0	223	84	0	0	198	2
Finland	1,316	922	2	0	5,293	4,317	11	7	10,864	26
Italy	3,519	1,303	560	858	22,128	11,766	2,864	2,895	42,845	7,460
Latvia	29	9	0	0	64	42	0	0	119	0
Lithuania	106	2	0	0	218	35	0	0	972	2
Norway	245	243	29	20	1,647	1,470	121	95	2,381	269
Netherlands	10,748	9,590	71	55	53,032	46,888	348	370	125,311	869
Poland-Dantzig	11	13	22	26	545	42	86	99	441	223
Romania	...	...	...	...	1) 33	1) 4	1) 24	1) 20	128	55
Switzerland	2,527	3,708	384	302	13,823	18,532	1,687	1,270	40,737	3,505
Czechoslovakia	205	176	183	251	522	708	926	1,082	1,554	2,555
Yugoslavia	320	172	2	4	939	500	18	13	4,676	53
Canada	2,447	3,609	157	55	5,758	7,906	626	366	81,891	1,241
Australia	187	198	—	—	1,052	842	—	—	2,813	—
Turkey	...	...	—	—	1) 4	1) 29	—	—	90	—
Union of South Afr.	...	...	...	...	1) 911	1) 899	1) 75	1) 62	1,369	238
Australia	657	683	13	7	6,559	5,587	55	26	12,454	99
New Zealand	10,853	13,583	...	...	85,507	85,410	1) 2	1) 0	185,722	0
Importing Countries:										
Germany	11	31	5,571	4,738	101	143	29,070	25,677	262	61,507
Belgo-Luxemb. E. U.	33	24	3,900	3,653	157	132	18,722	18,638	366	50,834
Spain	—	—	—	—	—	—	—	—	—	—
France	2,145	2,050	1,947	2,412	11,250	10,256	11,235	13,142	23,345	32,465
Greece	51	46	66	18	399	121	461	196	705	370
Hungary	93	86	0	0	357	333	0	0	767	2
Irish Free State	117	35	2	15	298	265	18	64	1,814	88
Portugal	11	0	18	37	62	44	84	101	121	346
United Kingdom	379	522	24,092	26,398	2,372	2,496	125,715	119,409	6,012	300,628
Sweden	—	—	159	309	—	—	919	1,457	—	3,530
U. S. S. R.	...	...	...	...	1) 2	1) 2	1) 256	1) 231	90	756
United States	79	95	3,960	3,153	461	445	25,391	20,095	1,135	59,851
Chile	...	...	...	...	1) 7	1) 15	1) 15	1) 13	26	44
Peru	...	...	...	...	...	...	...	...	—	648
Ceylon	—	—	20	11	—	—	82	60	—	220
India: by sea 4)	0	0	93	88	2	2	567	410	2	1,184
Java and Madura	—	—	...	...	—	—	1) 529	1) 408	—	1,733
Indo-China	...	...	...	...	1) 0	1) 0	1) 260	1) 198	2	602
Iraq	...	...	...	...	1) 7	1) 4	1) 18	1) 24	7	62
Iran	...	...	...	...	1) 0	1) 0	1) 0	1) 2	0	2
Japan	—	—	...	...	—	—	2) 35	2) 40	—	168
British Malaya	...	...	...	...	1) 4	1) 4	1) 126	1) 101	18	337
Palestine: Br. m. t.	...	...	...	...	3) 2	3) 35	3) 392	3) 273	57	1,845
Syria & Leb.: Fr. m. t.	176	37	68	236	223	123	414	509	470	957
Algeria	...	...	...	...	1) 15	1) 37	1) 3,741	1) 3,832	88	11,025
Egypt	...	...	...	...	1) 22	1) 2	1) 2,654	1) 2,388	44	7,771
French Morocco	—	—	...	...	—	—	1) 1,294	1) 1,268	—	3,675
Tunis	4	18	243	247	18	75	1,310	1,060	104	2,915
Totals	**38,954**	**40,506**	**41,791**	**43,124**	**227,959**	**214,540**	**231,026**	**216,719**	**583,834**	**562,060**

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1) Up to 30 April. — 2) Up to 31 March. — 3) Up to the end of February. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cacao. — Thousand lb.

COUNTRIES	MAY				EIGHT MONTHS (October 1-May 31)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Grenada	...	...	—	—	1) 6,296	1) 6,894	—	—	8,228	—
Haiti	194	311	—	—	2,619	3,371	—	—	3,618	—
Santo Domingo	...	...	—	—	1) 22,262	1) 26,101	—	—	40,259	—
Brazil	...	...	—	—	2) 109,343	2) 150,988	—	—	279,988	—
Equador	...	...	—	—	1) 15,108	1) 25,126	—	—	45,096	—
Trinidad	2,207	2,178	—	—	20,479	22,769	—	—	27,805	—
Venezuela	...	...	—	—	1) 16,755	1) 16,852	—	—	29,198	—
Ceylon	514	346	—	—	6,517	4,513	—	—	6,102	—
Netherlands Indies: Java and Madura	...	...	—	—	1) 1,294	1) 2,383	—	—	3,995	—
Cameroon: Fr. m. t.	1,678	3,796	—	—	51,242	46,956	—	—	52,927	—
Ivory Coast	5,040	9,826	—	—	92,528	93,029	—	—	108,840	—
Gold Coast	34,053	19,158	—	—	582,311	518,822	—	—	639,440	—
Madagascar	...	...	—	—	1) 377	1) 485	—	—	829	—
Nigeria and Cameroon: Brit. m. t.	27,240	5,622	—	—	192,766	162,512	—	—	201,931	—
São Thomé and Principe Islands	1,069	2,460	—	—	11,815	25,358	—	—	31,780	—
Togo: Fr. m. t.	220	1,312	—	—	17,611	15,688	—	—	21,182	—
Importing Countries:										
Germany	269	0	13,964	11,949	2,224	7	106,488	118,627	7	172,395
Austria	—	—	1,071	1,116	—	—	10,311	8,964	—	13,038
Belgo Luxemb. E. U	0	9	1,378	1,462	121	11	17,311	16,927	157	25,018
Bulgaria	—	—	0	172	—	—	1,060	1,259	—	1,559
Denmark	—	—	679	977	—	—	7,055	7,209	—	9,914
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	7	110	—	—	443	648	—	844
Finland	—	—	13	24	—	—	214	218	—	304
France	0	0	6,431	9,683	500	9	66,141	68,582	9	104,114
Greece	—	—	240	256	—	—	2,180	2,452	—	3,497
Hungary	—	—	443	972	—	—	5,979	7,238	—	9,961
Irish Free State	—	—	736	172	—	—	2,848	2,762	—	3,349
Italy	—	—	1,021	1,612	—	—	8,545	16,927	—	21,050
Latvia	—	—	60	112	—	—	869	847	—	1,199
Lithuania	—	—	26	79	—	—	650	820	—	1,047
Norway	—	—	395	412	—	—	5,313	3,470	—	5,514
Netherlands	181	496	7,937	8,466	4,855	3,499	99,680	112,723	5,181	152,545
Poland-Dantzig	—	—	906	1,464	—	—	10,446	9,692	—	14,035
Portugal	0	2	49	90	4	55	767	833	66	1,091
Romania	—	—	...	...	—	—	1) 2,456	1) 2,762	—	3,878
United Kingdom	353	390	12,339	12,361	5,452	4,339	217,282	251,987	8,494	276,108
Sweden	—	—	1,199	911	—	—	9,991	8,303	—	12,178
Switzerland	0	2	2,284	1,993	31	31	13,047	15,073	68	17,183
Czechoslovakia	—	—	1,651	1,653	—	—	22,181	21,422	—	27,055
Yugoslavia	—	—	121	31	—	—	1,781	1,400	—	1,845
U. S. S. R.	—	—	...	...	—	—	1) 11,003	1) 12,317	—	16,048
Canada	—	—	3,486	5,205	—	—	26,905	18,922	—	27,847
United States	—	—	49,650	21,718	—	—	517,034	437,498	—	580,159
Chile	—	—	...	...	—	—	1) 1,107	1) 1,369	—	1,784
Colombia	—	—	...	...	—	—	2) 450	...	—	...
Peru	...	...	...	...	4) 9	4) 15	4) 77	4) 146	26	705
Iran	—	—	...	...	—	—	1) 9	1) 24	—	20
Japan	—	—	...	...	—	—	2) 2,665	2) 2,150	—	4,248
British Malaya	...	...	...	...	1) 106	1) 82	1) 110	1) 51	141	108
Palestine: Br. m. t.	—	—	...	...	—	—	3) 355	3) 377	—	785
Syria & Leb.: Fr. m. t.	—	—	0	0	—	—	7	13	—	13
Algeria	...	...	...	...	1) 82	1) 60	1) 284	1) 430	60	686
Egypt	—	—	...	...	—	—	1) 355	1) 366	—	496
French Morocco	—	—	...	...	—	—	1) 86	1) 62	—	95
Tunis	—	—	2	2	—	—	15	18	—	35
Union of South Africa	—	—	...	...	—	—	1) 1,506	1) 2,496	—	3,322
Australia	0	11	79	1,649	24	46	13,794	11,592	104	12,403
New Zealand	—	—	...	...	—	—	1) 2,601	1) 2,648	—	3,353
Totals	73,018	45,919	106,167	84,651	1,162,731	1,130,001	1,191,401	1,171,644	1,515,531	1,530,828

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1) Up to 30 April. — 2) Up to 31 March. — 3) Up to the end of February. — 4) Up to 31 December.

Tea. — Thousand lb.

COUNTRIES	MAY				ELEVEN MONTHS (July 1-May 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Ceylon	25,062	26,134	0	0	183,209	203,432	0	0	223,530	0
China	5,697	1,898	35	22	88,972	71,234	880	657	76,201	688
Chosen	...	...	...	...	1) 130	1) 185	1) 18	1) 0	223	0
Taiwan	...	...	...	...	1) 18,836	1) 17,489	1) 79	1) 66	20,157	97
India: by sea 4)	10,212	12,097	46	104	288,668	300,579	3,805	5,024	313,430	5,203
» : by land 4)	...	...	...	...	2) 12,103	2) 12,273	2) 1,332	2) 1,239	15,704	3,001
Netherlands Indies:										
Java and Madura	...	...	...	...	1) 97,028	1) 95,370	1) 595	1) 902	118,230	955
Outer Provinces	...	...	—	—	1) 23,466	1) 23,221	—	—	28,854	—
Indo-China	...	...	...	...	1) 2,204	1) 2,463	1) 1,087	1) 1,429	2,806	1,810
Japan	1,111	694	68	62	36,032	30,223	1,012	437	32,551	494
Importing Countries:										
Germany	15	0	1,065	807	130	0	9,925	9,513	0	10,152
Austria	—	—	57	44	—	—	761	745	—	785
Belgo-Luxemb. E.U.	0	0	51	51	2	2	613	516	2	564
Bulgaria	—	—	4	2	—	—	84	60	—	66
Denmark	—	—	152	115	—	—	1,160	1,045	—	1,120
Spain	—	—	—	—	—	—	—	—	—	249
Estonia	—	—	7	11	—	—	93	90	—	95
Finland	—	—	31	22	—	—	278	256	—	276
France	2	2	238	262	15	15	2,996	2,659	18	2,855
Greece	—	—	7	15	—	—	379	401	—	445
Hungary	—	—	29	29	—	—	476	414	—	430
Irish Free State	0	0	443	2,379	35	22	18,243	20,459	24	22,432
Italy	—	—	2	13	—	—	179	187	—	196
Latvia	—	—	7	7	—	—	68	66	—	71
Lithuania	—	—	9	4	—	—	82	82	—	93
Norway	—	—	44	29	—	—	337	340	—	362
Netherlands	11	7	2,161	2,141	101	106	25,091	26,306	112	28,980
Poland-Dantzig	0	0	320	214	0	2	3,763	3,144	2	3,461
Portugal	—	—	46	51	—	—	355	412	—	443
Romania	—	—	...	...	—	—	1) 646	1) 666	—	763
United Kingdom	6,643	6,821	27,875	30,922	65,101	66,741	410,145	456,808	72,067	485,313
Sweden	—	—	79	84	—	—	908	952	—	1,016
Switzerland	2	2	93	165	26	24	1,667	1,733	26	1,819
Czechoslovakia	—	—	68	53	—	—	1,166	1,111	—	1,166
Yugoslavia	—	—	22	18	—	—	379	351	—	381
U. S. S. R.	...	...	...	...	1) 7,042	1) 14,846	1) 29,432	1) 32,007	17,970	34,882
Canada	—	—	2,815	7,024	—	—	34,833	42,355	—	44,214
United States	—	—	6,693	5,450	—	—	84,898	78,745	—	83,917
Chile	—	—	...	...	—	—	1) 4,713	1) 3,657	—	4,215
Peru	—	—	...	...	—	—	3) 507	3) 842	—	1,834
Iraq	...	..	...	...	1) 9	1) 55	1) 5,948	1) 4,495	57	5,461
Iran	...	...	...	...	1) 0	1) 0	1) 15,232	1) 11,292	0	12,928
British Malaya	...	...	...	...	1) 974	1) 946	1) 4,445	1) 3,988	1,142	4,822
Manchukuo	—	—	...	...	—	—	2) 8,014	2) 6,475	—	9,462
Palestine: Br. m. t.	...	...	...	...	2) 0	2) 0	2) 582	2) 421	0	562
Syria & Leb.: Fr. m. t.	0	0	0	15	0	11	472	287	11	298
Turkey	—	—	...	...	—	—	1) 2,321	1) 1,182	—	1,587
Algeria	...	...	...	...	1) 4	1) 4	1) 3,267	1) 2,066	9	2,518
Egypt	—	—	...	...	—	—	1) 14,387	1) 11,222	—	13,980
French Morocco	...	...	...	...	1) 348	1) 216	1) 18,448	1) 15,082	295	15,878
Tunis	—	—	304	282	—	—	3,080	6,087	—	6,321
Union of South Afr.	...	...	...	...	1) 622	1) 247	1) 12,851	1) 11,857	320	13,702
Australia	29	51	4,731	3,426	578	586	44,194	36,892	635	41,557
New Zealand	...	...	...	...	1) 132	1) 101	1) 8,927	1) 9,002	126	10,666
Totals	**48,784**	**47,706**	**47,502**	**53,823**	**826,367**	**840,393**	**785,153**	**816,024**	**924,502**	**885,585**

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1) Up to 30 April. — 2) Up to the end of February. — 3) Up to 31 December. — 4) **From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.**

Coffee. — Thousand lb.

COUNTRIES	May				Eleven months (July 1-May 31)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Costa Rica	...	...	—	—	1) 53,985	1) 43,757	—	—	46,875	—
Cuba	...	...	—	—	2) 8,620	2) 3,913	—	—	4,736	—
Guadalupe	...	...	—	—	2) 705	2) 560	—	—	816	—
Guatemala	...	...	—	—	2) 76,044	2) 91,748	—	—	118,353	—
Haiti	2,030	5,055	—	—	53,597	73,134	—	—	76,366	—
Nicaragua	...	...	—	—	2) 15,518	2) 15,340	—	—	30,856	—
Santo Domingo	1,995	2,694	—	—	25,867	26,191	—	—	28,246	—
Salvador	...	...	—	—	2) 86,849	2) 72,160	—	—	104,497	—
Brazil	122,851	153,398	—	—	1,635,891	1,932,460	—	—	2,059,770	—
Colombia	...	...	—	—	2) 423,077	2) 388,495	—	—	516,335	—
Dutch Guiana	293	472	—	—	6,638	10,196	—	—	10,598	—
Peru	...	...	...	...	4) 4,561	4) 3,340	4) 4	4) 13	5,668	31
Aden: by sea	677	860	—	—	8,605	11,321	—	—	12,240	—
India. by sea 5)	1,590	4,034	44	0	17,522	24,948	104	0	25,893	0
Netherlands Indies.										
Java and Madura	...	...	—	—	1) 69,382	1) 48,998	—	—	54,364	—
Outer Provinces	...	...	—	—	1) 124,912	1) 101,120	—	—	119,121	—
Indo-China	...	...	...	...	1) 765	1) 1,537	1) 141	1) 141	1,691	190
Ivory Coast	...	...	—	—	2) 9,328	2) 7,253	—	—	14,077	—
Kenya	1,746	2,480	—	—	38,239	43,667	—	—	45,914	—
Madagascar	...	...	—	—	1) 60,233	1) 39,436	—	—	42,300	—
Importing Countries:										
Germany	0	0	33,704	28,270	0	0	344,939	300,654	0	329,173
Austria	0	0	869	825	0	0	10,591	10,529	0	11,464
Belgo-Luxemb E. U.	602	101	10,342	8,955	2,963	677	106,548	100,961	728	108,973
Bulgaria	—	—	79	79	—	—	1,133	994	—	1,100
Denmark	—	—	7,275	6,034	—	—	56,498	50,779	—	56,467
Spain	—	—	—	—	—	—	—	—	—	52,913
Estonia	—	—	31	24	—	—	192	181	—	192
Finland	—	—	4,072	3,613	—	—	43,821	38,283	—	42,428
France	0	0	28,881	36,555	35	4	367,690	392,788	4	425,932
Greece	—	—	728	1,199	—	—	12,979	12,311	—	13,314
Hungary	—	—	362	434	—	—	3,957	4,120	—	4,398
Irish Free State	0	0	31	33	0	0	525	551	0	595
Italy	0	2	7,919	6,074	4	15	74,042	74,201	15	79 166
Latvia	—	—	20	46	—	—	309	234	—	249
Lithuania	—	—	62	31	—	—	320	399	—	412
Norway	—	—	3,931	2,030	—	—	35,741	39,595	—	41,515
Netherlands	254	112	4,852	2,824	2,200	6,784	60,158	89,060	6,839	91,534
Poland-Dantzig	0	0	1,208	1,711	13	9	11,477	11,089	9	11,718
Portugal	148	304	809	1,250	2,064	3,069	13,682	12,247	3,430	13,336
Romania	—	—	...	...	—	—	1) 6,508	1) 7,575	—	8,151
United Kingdom	586	1,230	2,959	2,773	14,562	22,437	44,335	51,026	23,473	52,270
Sweden	—	—	8,406	7,716	—	—	97,394	98,657	—	105,842
Switzerland	0	0	2,277	2,216	2	2	32,514	36,229	2	38,281
Czechoslovakia	—	—	2,229	2,066	—	—	22,944	22,659	—	24,714
Yugoslavia	—	—	981	1,151	—	—	13,631	13,433	—	15,210
U S S R	—	—	...	...	—	—	1) 520	1) 1,027	—	1,146
Canada	35	35	4,434	5,346	258	203	36,121	35,719	214	39,196
United States	849	597	122,075	116,058	10,730	8,025	1,624,574	1,729,230	8,792	1,853,267
Chile	—	—	...	...	—	—	1) 5,864	1) 6,651	—	7,527
Ceylon	0	0	115	101	2	2	3,053	2,608	2	2,738
Iraq	...	...	...	...	1) 0	1) 0	1) 1,512	1) 825	—	1,325
Iran	...	...	...	...	1) 0	1) 0	1) 161	1) 154	0	236
Japan	—	—	939	556	—	—	11,111	10,307	—	10,825
British Malaya	...	...	...	...	1) 4,872	1) 4,323	1) 15,664	1) 13,210	5,417	16,118
Manchukuo	—	—	...	...	—	—	3) 302	3) 240	—	392
Palestine: Br. m. t.	...	...	...	...	3) 0	3) 0	3) 2,083	3) 3,018	0	3,726
Syria & Leb.: Fr.m.t.	0	0	112	265	0	4	2,427	2,218	4	2,390
Turkey	—	—	...	...	—	—	1) 8,514	1) 8,658	—	10,620
Algeria	...	...	...	...	1) 4	1) 4	1) 25,109	1) 25,900	4	32,452
Egypt	—	—	...	...	—	—	1) 14,462	1) 13,832	—	17,324
French Morocco	—	—	...	...	—	—	1) 4,663	1) 5,201	—	6,277
Tunis	0	0	265	353	0	2	2,959	3,029	2	3,342
Union of South Afr.	...	...	...	...	1) 4	1) 11	1) 27,624	1) 26,493	13	31,654
Australia	4	2	474	384	73	22	3,677	4,070	24	4,619
New Zealand	...	...	...	...	1) 0	1) 0	1) 403	1) 348	0	437
Totals	**133,660**	**171,346**	**246,598**	**236,971**	**2,758,124**	**2,985,167**	**3,117,576**	**3,222,192**	**3,367,688**	**3,575,179**

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1) Up to 30 April. — 2) Up to 31 March. — 3) Up to the end of February. — 4) Up to 31 December. — 5) From 1st April 1937. The Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

STOCKS

Cereals in farmers' hands in the United States.

PRODUCTS	Percentage of total production					Stocks in 1 000 centals				
	1 July 1937	1 April 1937	1 Jan 1937	1 July 1936	1 July 1935	1 July 1937	1 April 1937	1 Jan 1937	1 July 1936	1 July 1935
Wheat	3 5	11 4	20 5	7 0	8 4	13 128	43 034	77 162	26 393	26 603
Oats	11 2	36 5	61 4	20 7	12 5	28 312	92 078	154 994	79 025	22 833
Maize 1)	12 4	32 6	64 4	19 6	18 1	87 423	230 709	453 649	221 035	116 351

1) Data based on maize for grain

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	July 1937	June 1937	May 1937	July 1936	July 1935
	1 000 centals				
WHEAT					
Canadian in Canada	22 618	29 315	37 160	72 143	113 419
U S in Canada	35	0	0	0	0
U S in the United States	9 718	10 253	15 752	13 997	13 171
Canadian in the United States	3 187	4 810	6 005	9 368	5 567
Of other origin in the United States	0	0	0	0	867
Total	*35 558*	*44 378*	*58 917*	*95 408*	*133 024*
RYE					
Canadian in Canada	172	354	990	1 834	1 819
U S in Canada	47	53	0	0	0
U S in the United States	787	1 139	1 428	3 769	4 794
Canadian in the United States	0	0	42	169	112
Of other origin in the United States	0	0	0	0	1 917
Total	*1 006*	*1 546*	*2 460*	*5 772*	*8 642*
BARLEY					
Canadian in Canada	1 959	2 396	3 218	2 770	2 439
U S in Canada	0	0	0	0	0
U S in the United States	2 260	2 819	4 055	5 074	2 929
Canadian in the United States	170	568	963	0	117
Of other origin the United States	0	0	0	0	264
Total	*4 389*	*5 783*	*8 236*	*7 844*	*5 749*
OATS					
Canadian in Canada	1 303	1 547	2 672	2 457	1 981
U S in Canada	0	0	0	73	0
U S in the United States	634	1 807	3 771	9 939	2 828
Canadian in the United States	0	0	0	0	0
Of other origin in the United States	0	0	0	0	19
Total	*1 937*	*3 354*	*6 443*	*12 469*	*4 828*
MAIZE					
U S in Canada	1	1	0	40	749
Of other origin in Canada	1 516	980	1 238	463	1 197
U S in the United States	3 508	2 417	3 750	3 912	4 195
Of other origin in the United States	75	18	611	0	571
Total	*5 100*	*3 416*	*5 599*	*4 415*	*6 712*

Quantities of cereals on ocean passage with first destination Europe.

PRODUCTS	July 1937	June 1937	May 1937	July 1936	July 1935
	Saturday nearest 1st of month				
	1,000 centals				
Wheat (and flour in terms of grain)	20,501	24,682	30,619	16,032	16,483
Rye	427	1,066	326	514	734
Barley	1,188	1,344	1,552	1,416	1,184
Oats	1,014	618	1,091	560	797
Maize	14,568	12,682	14,275	12,499	16,258

AUTHORITY: *Broomhall's Corn Trade News.*

Cereals and potatoes in farmers' hands in Germany.

PRODUCTS	Percentage of total production				Stocks in 1,000 centals			
	30 June 1937	31 May 1937	30 June 1936	30 June 1935	30 June 1937	31 May 1937	30 June 1936	30 June 1935
Winter wheat	...	4	3	3	...	3,800	2,800	2,600
Spring wheat	...	3	2	2	...	220	170	260
Rye	...	6	5	6	...	10,200	8,200	10,000
Winter barley	...	5	3	2	...	1,300	700	300
Spring barley	...	5	3	4	...	2,600	1,600	2,200
Oats	...	14	10	11	...	17,600	11,900	13,200
Late potatoes	...	8	4	4	...	78,800	35,000	39,200

AUTHORITY: *Marktberichtstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A.)

Cereals in commercial elevators and mills in Germany 1).

PRODUCTS	June 1937	May 1937	April 1937	June 1936	June 1935
	Last day of month				
	1,000 centals				
WHEAT:					
Grain	10,393	13,578	14,321	18,578	28,268
Flour for bread	1,662	1,570	1,545	2,496	3,078
TOTAL 2)	*12,701*	*15,759*	*16,469*	*22,044*	*32,543*
RYE:					
Grain	11,272	14,295	17,384	10,858	23,563
Flour for bread	1,219	1,365	1,193	902	1,647
TOTAL 2)	*13,065*	*16,301*	*19,138*	*12,183*	*25,986*
BARLEY	1,003	1,373	1,453	840	1,667
OATS	2,114	2,381	2,105	3,075	2,743

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries). — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour at the ports of Great Britain and Ireland 1).

PRODUCTS	July 1937	June 1937	May 1937	July 1936	July 1935
	First day of month				
	1,000 centals				
WHEAT					
Grain	5 376	5 592	6 432	5 400	5 616
Flour as grain	1 056	1 032	936	744	648
TOTAL	*6 432*	*6 624*	*7 368*	*6 144*	*6 264*
BARLEY	920	1 520	1 200	1 160	560
OATS	208	224	288	240	336
MAIZE	2 616	2 784	3 024	3 072	2 160

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1) Imported cereals

AUTHORITY *Broomhall's Corn Trade News*

Commercial cereals in Antwerp, Rotterdam and Amsterdam 1)

PRODUCTS AND LOCATION	July 1937	June 1937	May 1937	July 1936	July 1935
	Saturday nearest 1st of month 2)				
	1 000 centals				
WHEAT					
Antwerp	1 313	1 435	1 367	494	915
Rotterdam	1 666	1 853	515	348	354
Amsterdam	14	23	12	44	15
RYE					
Antwerp	27	30	28	15	158
Rotterdam	61	94	51	8	226
Amsterdam	0	0	0	0	2
BARLEY					
Antwerp	227	406	388	102	354
Rotterdam	11	13	6	55	7
Amsterdam	0	0	1	0	1
OATS					
Antwerp	27	32	27	55	31
Rotterdam	0	0	0	12	18
Amsterdam	17	19	22	34	28
MAIZE					
Antwerp	143	246	195	26	31
Rotterdam	132	143	77	17	121
Amsterdam	51	16	5	3	27

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1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES *Nederlandsche Silo-, Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam

Cotton stocks on hand in the United States.

LOCATION	June 1937	May 1937	April 1937	June 1936	June 1935
	Last day of month				
	1,000 centals				
In consuming establishments	7,569	8,861	9 702	4,818	4,294
In public storage and at compresses . .	15 101	17,523	20 582	22,105	29,577
TOTAL	*22,670*	*26,384*	*30,284*	*26,923*	*33,871*

Cotton stocks at Bombay and Alexandria.

LOCATION	July 1937	June 1937	May 1937	July 1936	July 1935
	Thursday nearest 1st of month				
	1,000 centals				
Bombay 1) .	3 940	4,266	4,756	3 164	2 676
Alexandria 2)	763	1,157	1,670	979	917

1) Stocks held by exporters, dealers and millers — 2) Quantities consumed in Alexandria or returned to the interior of the country are not included

AUTHORITIES *East Indian Cotton Assn* and *Commission de la Bourse de Minet el Bassal*

Cotton stocks in Europe.

LOCATION, DESCRIPTION	July 1937	June 1937	May 1937	July 1936	July 1935
	Thursday or Friday nearest 1st of month				
	1,000 centals				
Great Britain					
American	1 626	1,866	1,991	1 411	1 074
Argentine, Brazilian	746	711	796	409	235
Peruvian	221	195	186	126	301
East Indian	165	367	428	341	257
Egyptian, Sudanese	765	961	1,027	973	1,050
W Indian, W and E African and other	302	269	160	167	198
TOTAL	*3 825*	*4,369*	*4,588*	*3 427*	*3 115*
Bremen					
American .	563	666	679	669	604
Other	226	231	255	309	276
TOTAL	*789*	*897*	*934*	*978*	*880*
Le Havre					
American . .	691	824	1,010	555	364
French colonial	23	26	29	17	13
Other	126	94	95	138	71
TOTAL	*840*	*944*	*1,134*	*710*	*448*
Total Continent 1)					
American .	1,378	1,555	1,770	1 735	1 437
Argentine, Brazilian, Peruvian . .	137	116	148	256	166
East Indian .	114	118	101	220	248
Egyptian .	79	94	108	222	217
W Indian, W. and E African, and other .	152	154	165	158	112
TOTAL .	*1,860*	*2 037*	*2,292*	*2,591*	*2,180*

1) Including Bremen and Le Havre

AUTHORITIES: *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

PRICES

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

Description	16 July 1937	9 July 1937	2 July 1937	25 June 1937	18 June 1937	Average June 1937	Average July 1936	Average July 1935	Commercial Season 1) 1935-36	Commercial Season 1) 1934-35
Wheat.										
Budapest (a) Tisza wheat 78 kg p hl (pengo p quintal)	20 85	20 10	20 50	18 65	19 82	19 77	15 18	15 45	16 78	16 67
Braila Good quality (lei p quintal)	6) 500	6) 465	6) 455	475	490	* [illegible]	6) 416	* 340	* 442	* 402
Winnipeg No 1 Manitoba (cents p 60 lb)	154 3/8	144 1/4	145 1/8	130	122 3/8	122 3/4	95	81 5/8	85	81 7/8
Chicago No 2 Hard Winter (cents p 60 lb)	132 5/8	127	136 1/4	131	122 3/4	124 5/8	112 1/8	94 1/2	109 3/4	104 3/8
Minneapolis No 1 Northern (cents p 60 lb)	154 5/8	149	150 3/4	143 3/8	135 3/4	134 1/8	127 3/8	108 3/8	119 3/8	110 7/8
New York No 2 Hard Winter (cents p 60 lb)	6) 148 1/4	6) 141 5/8	152 3/8	144 1/4	137 1/4	138 3/4	125	104 7/8	124 1/4	113 3/8
Buenos Aires (a) Barletta 80 kg p hectol (paper pesos p quintal)	14 20	14 10	14 70	13 00	12 70	13 16	10 89	6 79	9 53	6 86
Karachi White Karachi 2 barley 1½ impurities (rupees p 656 lb)	32-4-0	32 2-0	32-9-0	30-5 0	30-3-0	30 5 6	25-15 0	22-6 3	24-7-6	22-5-9
Berlin Home grown (free at Brandenburg stations Rm p quintal 2)	20 80	20 80	20 80	20 80	20 80	20 80	21 40	20.80	20 53	20 29
Hamburg (c i f Rm p quintal										
No 1 Manitoba		15 24	15 36	13 41	13 47	13 23	10 20	8 59	9 51	8 95
Barusso (80 kg p hl)		13 59	13 39	12 71	12 75	13 08	9 57	6 38	8 74	6 50
Antwerp (francs p quintal)										
Home grown	145 00	144 00	144 00	144 00	144 00	146 50	114 40	80 35	100 90	69 10
No 1 Manitoba Atlantic (in bond)	178 50	176 00	165 00	153 00	152 00	153 40	114 60	100 35	110 80	86 10
Barusso (in bond)	7) 161 00	) 161 00	156 00	150 00	150 00	150 00	110 5	75 10	103 10	60 90
Paris Home grown (delivery regional depots 70 kg p hl frs p quintal) 3)	157 00	157 00	157 00	155 50	155 50	155 50	105 40	83 50	91 30	92 35
London (Mark Lane) Home grown (sh p 504 lb on the farm)	43 6	43 6	42 3	41 6	42 6	42 -	33	25 -	27/5 1/4	22/4 1/8
Liverpool and London (c i f parcels shipping current month sh p 480 lb)										
French (on sample)	n q	n q	n q	n q	n q	n q	*28 5	18 9 3/4	* 25/-	19/8
Czechoslovakian (on sample)	43 9	43	43	n q	n q	n q	n q	n q	n q	n q
No 1 Northern Manitoba (Atlantic)	53 10 1/2	52 6	52 3	46 4 1/2	45 7	45 5	34 7 1/4	30/4 1/8	32/9	31/7 3/4
No 1 Northern Manitoba (Pacific	n q	n q	8) n 53	8) 47 6	8) 46 10 1/2	8) 46 4 1/2	34 4 3/4	28 11 1/2	32/5 1/4	31/2 3/4
No 3 Northern Manitoba (Pacific)	n q	n q	8) n 51 3	8) 45 3	8) 44 10 1/2	8) 44 2 1/2	33 10 3/4	26 3 1/2	30/5 3/4	28/5 3/4
No 2 Hard Winter	9) 48 7 1/4	9) 48 10 1/2	9) 49 4 1/2	9) 44 7 1/2	9) 43 3	9) 43 7 1/2	n q	n q	n q	n q
Rosafe (afloat) 4)	10) 42 9	10) 43 4 1/2	n q	n q	n q	n q	n q	*22 4	* 28/9	22/3 1/8
White Karachi, choice	45	44 4 1/2	45 1 1/4	41 6	42	42 1 1/2	33 5 3/4	n. q.	* 31/7 1/2	* 29/3
West Australian (cargoes)	47 3	46 3	47 6	42 4 1/2	43 3	43 2 1/4	n q	26 3	* 30/2 1/8	26/3 3/8
New South Wales (cargoes)	47 3	46 3	47 6	42 4 1/8	43 3	43 2 1/4	n q	25 3	* 29/9	* 25/7
Milan (b) Home grown, soft Buono mercantile 76 78 kg p hl (lire p q) 5)	11) 138 00	11) 138 00	11) 138 00	11) 138 00	11) 138 00	131 00	119 60	92 10	114 20	95 80
Rye.										
Berlin Home grown (free at Brandenburg stations Rm p quintal) 2)	1) 18 40	12) 17 70	12) 17 70	17 10	17 10	17 10	16 50	16 80	16 68	16 29
Hamburg Plata, 72 73 kg p hl (c i f Rm p quintal)		13 28	12 96	12 65	12 81	13 11	5 64	4 42	5 27	5 76
Budapest Pest rye (pengo p quintal)	19 10	18 60	18 70	19 85	20 80	20 60	11 49	11 22	14 45	12 08
Warsaw Good quality (zloty p quint)	23 25	23 87	26 87	28 50	28 12	26 78	13 67	12 12	13 25	14 82
Winnipeg No 2 (cents p 56 lb)	153 1/2	144	137 5/8		111 1/8		58 5/8	34 7/8	43 1/4	52 7/8
Minneapolis No 2 (cents p 56 lb)	99	93 3/4	95 5/8	102 1/2	95 3/4	98 1/8	75 1/2	42 3/8	53 1/8	67 7/8
Groningen (c) Home grown (fl p quintal)	n q	n q	n q	n q	n q	n q	n q	7 20	* 7 08	7 35

* Indicates that the product was not quoted during part of the period under review — n q. = *not quoted* — n = *nominal* — a) Thursday prices — b) Saturday prices — c) Prices on preceding Tuesday

1) August July — 2) From 16 Aug 1934, for wheat and July 1934, for rye, fixed producers' prices for the *price region* of Berlin city See *Govt Measures* No 2, p 57, and this *Crop Report*, Aug 1936, p 609 By a new decree the December prices remain in force up to the end of the agricultural year — 3) Until 25 Dec 1934, minimum prices on the farm increased by transport costs, Jan Aug 1935, spot quotations in the free market, Sept 1935 Aug 1936, prices in the regulated market, delivery current month, subsequently, fixed producers' prices (see note in *Crop Report*, Sept 1936, p 691) — 4) Aug -Dec 1934, 64 lb p bushel, then 63½ lb — 5) Commencing Aug 1936, prices free at mills in Milan — 6) New crop 7) Quality Bahia 8) Afloat 9) Gulf shipping Aug (11 June 43/1½, 4 June 43 3) — 10) New crop shipping Jan Feb — 11) New crop See this *Crop Report* June 1937 p 474 12) New crop See note on p 571

Description	16 July 1937	9 July 1937	2 July 1937	25 June 1937	18 June 1937	Average June 1937	Average July 1936	Average July 1935	Commercial Season 1)	
									1935-36	1934 35
Barley.										
Warsaw Malting, good quality (zloty p quintal)	n q	n q	n q	n q	n q	n q	* 15 87	15 25	* 15 97	19 60
Braila Average quality (lei p quintal)	370	370	375	375	375	367	229	n 180	242	246
Prague Malting, av qual (crs p quintal) 2)	n q	n q	n q	141 00	141 00	141 00	n q	n q	* 131 70	131.70
Winnipeg No 4 Western (cents p 48 lb)	68 1/4	67	68 3/8	61 1/4	61 1/4	60 3/4	48 5/8	31 1/8	34 3/4	45 5/8
Chicago Feeding (on sample cents p 48 lb)	62	58	60	60	59	63 3/4	55 3/4	42	45 1/4	72 1/2
Minneapolis No 2 Feeding (c p 48 lb) 3)	63	63	63 1/2	63	59	59 [illegible]/8	59	40	39 1/8	67 1/8
Berlin Home grown fodder (free at Brandenburg stations, Rm p quint) 4)	[7] 16 50	[7] 16 00	[7] 16 00	18 00	18 00	18 00	16 80	16 35	17 08	16.16
Antwerp Danubian (in bond francs p q)	111 00	112 00	111 00	111 00	112 50	112 40	80 30	73 25	74 10	70 30
London (Mark Lane) English malting, best quality (sh p 448 lb, on farm)	39 -	39/-	39 -	n 39 -	n 39 -	39	* 30 -	n 28 6	38/3	38/-
Liverpool and London (c i f parcels shipping current month sh p 400 lb)										
Danubian 3 % impurities	n q	n q	n q	n q	n q	[8] * 27 6	[8] 17/1 3/4	13 3 3/4	* 15/3	* 19/2 1/4
Russian (Azoff Black Sea)	n q	n q	n q	n q	n q	n. q	n q	13 4 1/2	* 14/10	n q
Canadian No 3 Western	30	31 10 1/2	28 7 1/2	[10] 27 7 1/8	[11] 28 9	28 4 3/4	21 10	16 3 1/4	18 0 1/2	21/10 1/2
Californian malting (sh p 448 lb)	[11] 43/-	[11] 41	[11] 40/	[11] 39	[11] 39	[11] 39 6 3/4	29 5 1/2	* 23 6	24/8 3/4	* 31/6
Plata (64 65 kg p hl)	n q	n 27/6	n 27 9	n q	26 6	27/6	17 9 1/2	) 14 -	15/11 1/2	18/4
Persian (Iraquian)	26 6	26 4 1/2	24 9	24 9	24 9	25 1	17 1 1/2	[7] 13 5 1/4	15 4 1/4	18/6
Groningen (a) Home grown winter (fl p q)	8 07	8 07	8 02	7 85	7 95	7 95	* 5 65	4 75	4 91	5 30
Oats.										
Braila Good quality (lei p quintal)	360	370	370	n q	n q	n q	n q	n q	* 294	n q
Winnipeg No 2 White (cents per 34 lb)	69 1/2	63 7/8	65 1/8	58 [illegible]/8	55 [illegible]/4	56 3/8	42	43 3/8	34 3/4	42 3/8
Chicago No 2 White (cents per 32 lb)	52 3/4	54 1/4	52 1/2	49 1/4	49 1/4	49 1/2	40	36 1/2	32 1/4	50 7/8
Buenos Aires (b) Current quality (paper pesos p quintal)	6 35	6 25	6 45	6 25	6 05	6 27	6 25	5 22	* 6 38	5 39
Berlin Home grown (free at Brandenburg stations Rm p quint) 4)	17 60	17 60	17 60	17 60	17 60	17 60	17 60	16 90	16 79	* 16 39
Paris Home grown black and other (delivery regional depots frs p quintal)	118 00	[14] 116 50	n q	123 .5	121 50	122 15	85 10	37 85	66 40	48 50
London (Mark Lane) Home grown white (sh p 350 lb on farm)	28 6	27 6	27 6	27 6	28	27 4 1/2	19 10 3/4	23 -	18/7 1/2	20 10
Liverpool and London (c i f parcels shipping current month sh p 320 lb)										
Canadian No 2 Western (Atlantic) 5)	n q	n q	n q	n q	n q	n q	20 10 1/2	20 11 1/2	18/7 1/2	20/10 1/8
Plata (f a q)	[13] 17 9	[14] 17 6	17 9	17 1 1/2	17 3	17 7	14	12 10 3/4	14 5	13/0 1/8
Milan (c) (lire p quintal)										
Home grown	101 50	101 50	n 107 50	n 107 50	n 107 50	107 50	n q	* 67 50	* 97 10	61 25
Foreign	98 00	98 00	102 50	104 50	104 50	106 25	91 00	68 50	92 60	60 45
Maize.									1936 37	1935 36
Braila Average quality (lei p quintal)	320	320	320	315	310	311	254	240	* 264	243
Chicago No 3 Yellow (cents p 56 lb)	128	130 1/4	127 1/4	121 3/8	113 1/2	121	90 1/2	84	103 3/8	72 5/8
Buenos Aires (b) Yellow Plata (paper pesos p quintal)	6 60	6 57	6 65	6 25	6 05	6 29	5 39	4 40	5 85	4 51
Antwerp (in bond, francs p quintal)										
Yellow Plata	92 25	90 25	88 25	85 25	85 50	88 05	71 85	53 95	78 65	56 25
Cinquantino (Argentine "Cuarentino")	101 00	103 00	99 00	96 00	95 50	99 90	76 90	57 25	83 10	60 45
Liverpool and London (c i f, parcels shipping current month, sh p 480 lb)										
Danubian	[13] 27 3	[13] n 26 6	n 26/9	25 3	26	25 11 1/4	19 6 1/2	n q	* 23/5	* 16/11
Yellow Plata	26 6	26 3	26 4 1/2	24 10 1/8	24 7 1/2	25 5 1/2	20	15 0 3/4	22/4	16/0 1/8
No 2 White flat African	26 3	26/3	26 3	[10] 26 -	[10] 27 6	[1] 27 3	n q	16 8	n c	* 17/-
Milan (c) «Alto Milanese» (lire p quint) 6)	82 00	82 00	82 00	82.00	82 00	82 00	89 00	78 25	85 55	81 75

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* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — a) Prices on preceding Tuesday — b) Thursday prices — c) Saturday prices

1) Barley and oats August July, maize, May April — 2) From August 1934 monopoly price paid to producers, for delivery Prague From August 1935 barley of good quality, not less than 68 kg per hl see this *Crop Report* for Aug 1936, p 609. From August 1936, only delivered barley quoted — 4) From 16 July 1934 for fodder barley from 1 August 1934 for oats, fixed producers prices for the *price region* of Berlin See *Govt Measures*, No 2, p 57 and this *Crop Report* for Aug 1936 p 609. — Jan April 1935, Pacific — 6) Commencing Oct 1936 maximum fixed price, free at station in Milan subsequently, free at producer s station — 7) New crop See note on p 571 — 8) Afloat — 9) Shipping Aug Sept — 10) Shipping July — Californian, Nº 1 Brewing, shipping July Sept — 12) Delivery Aug 13) Shipping August

Description	16 July 1937	9 July 1937	2 July 1937	25 June 1937	18 June 1937	Average				
						June 1937	July 1936	July 1935	Commercial Season 1)	
									1936	1935
Rice (milled).										
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	58.67	57.75	* 57.30	56.60
Milan (*b*) (lire p. quintal):										
Vialone, oiled 2)	n. q.	n. q.	n. q.	180.00	180.00	180.00	176.00	147.75	177.30	159.20
Maratelli, oiled 2)	n. q.	n. q.	n. q.	155.50	155.50	155.50	159.50	128.60	155.05	136.60
Originario, white	128.00	128.00	128.00	128.00	128.00	128.00	125.00	124.85	125.65	121.75
Rangoon (rupees and annas p. 7500 lb.):										
No. 2 Burma	...	...	...	...	...	...	241-8	263-12	264- 6	253-8
Small mills specials	...	...	...	...	...	...	221-8	242-6	223- 5	227-4
Big mills specials	...	...	...	...	...	...	212-8	236-3	214-12	219-9
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % brokens	...	...	...	6.54	6.46	6) 6.50	4.75	4.40	4.96	4.18
No. 2 Japan, 40 % brokens	...	...	...	6.19	6.13	7) 6.20	4.50	4.09	4.74	3.96
Marseilles (*a*): No. 1 Saigon (c. i. f.; frs p. quintal)	100.00	94.00	93.00	85.00	87.00	87.25	61.10	56.75	63.65	54.80
London (*a*) (c. i. f.; shillings p. cwt.):										
No. 3 Spanish Belloch oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11/5	13/-	* 10/4½	* 12/7
No. 6 Italian good, oiled	n. q.	n. q.	n. q.	n. q.	17/6	* 17/6	n. q.	n. q.	n. q.	* 14/0½
American Blue Rose, extra fancy	18/-	17/10½	18/-	18/-	18/6	18/6¾	n. q.	* 15/3	18/4¼	* 15/5¾
No. 2 Rangoon or Bassein (Burma)	8/10½	8/10½	8/10½	8/10½	8/10½	8/10½	7/6¾	7/9½	7/9¾	7/8
No. 1 Saigon	8/9	8/7½	8/7½	8/7½	9/-	8/10¼	8/1½	7/7½	8/0¼	7/5¼
Siam Super, white	10/6	9/6¾	9/9	9/10½	10/-	9/11¼	8/6½	9/7½	9/0½	9/2¾
Tokyo: Chumai (brown Japanese, average quality, yen p. koku)	...	...	...	...	...	...	31.90	29.85	30.70	29.87
Linseed.										
Buenos Aires (*a*): Current quality (paper pesos p. quintal)	16.00	15.65	15.80	15.35	15.35	15.41	15.12	11.74	14.34	12.28
Bombay: Bold (rupees p. cwt.)	8-4-0	8-2-0	8-1-0	7-13-0	7-13-6	7-14-6	7-15-10	6-8-3	7-6-7	6-10-8
Antwerp: Plata (in bond; frs p. quint.)	189.50	184.00	185.00	182.00	183.00	183.60	165.40	124.00	162.25	127.55
London (c. i. f.; £ p. long ton):										
Plata (delivery Hull)	13- 5-0	12-17-6	13- 1-3	n. 12-16-3	n. 12-18-9	12-19-8	11-15-0	9- 4-4	11- 6-4	9-13-2
Bombay Bold	15-12-6	15- 5-0	15-10-0	15- 2-6	15- 5-0	15- 6-3	14- 1-9	11-15-0	13-12-1	12- 5-5
Duluth. No. 1 Northern (futures, cents p. 56 lb.)	8) 209½	8) 200½	8) 201	8) 192½	8) 189	8) 191⅜	8) 202⅜	8) 157⅛	191	172¼
Cottonseed.									1935-36	1934-35
Alexandria (piastres p. ardeb):										
Upper Egypt	73.6	68.7	68.1	67.7	69.4	72.4	* n. 84.1	65.7	69.7	62.0
Sakellaridis	68.0	63.0	62.6	62.1	63.8	66.8	n. 87.1	62.7	* 64.0	57.7
London: Sakellaridis (c. i. f., delivery Hull, £ p. long ton) 4)	7-7-6	7-3-9	7-2-6	6-15-0	6-18-9	7-1-10	n. 7-17-0	n. 6-1-3	n. 6-13-7	5-18-7
Cotton.										
New Orleans: Middling (cents p. lb.)	12.37	12.88	12.35	12.48	12.34	12.56	12.89	12.16	11.64	12.47
New York: Middling (cents p. lb.)	12.52	13.05	12.51	12.74	12.56	12.78	13.08	12.27	11.74	12.46
Bombay (rupees p. 784 lb.):										
Broach, f. g. (futures)	9) 208-4	9) 214-0	9) 216-0	9) 225-12	9) 227-4	9) 231-3	9) 231-0	9) 233-8	210- 4	230-4
Broach, f. g. (spot)	208-0	216-0	218-0	225-0	227-0	231-0	231-8	239-12	* 219- 0	233-4
Oomra, fine (spot)	202-0	209-0	212-0	217-0	220-0	225-8	211-8	216-12	198-12	208-8
Alexandria (talaris p. kantar):										
Sakellaridis, f. g. f.	19.60	19.00	18.75	19.20	18.60	19.06	18.20	14.66	16.11	15.20
Ashmuni f. g. f. 5)	n. 16.80	n. 16.65	n. 16.30	n. 16.85	16.25	17.45	14.91	13.70	13.61	13.34
Bremen: Middling (U. S. cents p. lb.)	14.78	15.03	14.86	14.73	14.59	14.81	15.28	14.25	13.88	14.38
M. g. Broach, f. g. (pence p. lb.)	n. 6.00	n. 6.10	n. 6.10	n. 6.20	n. 6.20	n. 6.22	n. 5.85	n. 6.30	n. 5.86	n. 6.04
Le Havre: Middling, Gulf; (frs. p. 50 kg.)	439.00	436.00	n. q.	419.50	387.00	398.25	251.00	248.87	240.00	250.75
Liverpool (pence per lb.):										
Middling, fair	n. 8.05	n. 8.18	n. 8.07	n. 8.15	n. 8.12	n. 8.26	n. 8.43	n. 7.82	n. 7.58	n. 7.95
Middling	6.85	6.98	6.87	6.95	6.92	7.06	7.33	6.92	6.53	6.94
São Paulo, g. f.	7.03	7.16	7.05	7.10	7.07	7.21	7.26	n. 7.05	6.81	6.99
Broach, good staple, f. g.	n. 5.72	n. 5.86	n. 5.78	n. 5.90	n. 5.87	n. 5.94	n. 5.74	5.93	5.43	5.61
C. P. Oomra, superfine	5.77	5.91	5.83	5.95	5.92	5.99	5.94	6.14	5.61	5.73
Egyptian Sakellaridis, f. g. f.	10.05	10.07	9.70	10.05	10.00	10.54	10.49	8.03	9.18	8.52
Upper Egyptian, f. g. f.	9.76	10.18	9.49	9.58	8.99	9.22	8.54	7.42	7.49	7.55

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — *n.* = *nominal*. — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Producers' prices, f. o. r., on and after 22 Oct 1936 to 20 Feb. 1937; subsequently, producers' prices, free at wholesalers' stores — 3) From June 1936, "London Standard" — 4) Prices for spot, c. i. f., delivery London, from 15 Jan. 1937. — 5) Before August 1935, Ashmuni-Zagora f. g. f. quality. — 6) 11 June: 6.47; 4 June: 6.51 — 7) 11 June: 6.21, 4 June: 6.26. — 8) July futures. — 9) July-Aug futures.

DESCRIPTION	16 July 1937	9 July 1937	2 July 1937	25 June 1937	18 June 1937	AVERAGE				
						June 1937	July 1936	July 1935	Commercial Season 1936	Commercial Season 1935
Bacon.										
London Provision Exchange (*a*) (shillings, p cwt)										
English, No 1, lean sizable	96/-	90/-	90/-	90/-	86 -	86/6	91 8	94/7	91/9	89/11
Danish No 1 sizable	96/-	91/-	91/-	91/-	87 -	88/-	93/7	94/-	93/8	88/6
Irish No 1, sizable	97/-	92/-	90/6	90/6	85/-	86 -	92/5	95/7	91/10	88/8
Lithuanian, No 1, sizable	90/-	84/-	84/-	84/-	79/-	80/3	84/7	85/-	84/10	82/1
Dutch, No 1 sizable	95/-	89/-	89/-	89/-	83/-	84/6	90/-	91/9	89/7	85/4
Polish, No 1, sizable	90/-	84/-	84/-	84/-	79/-	80/3	84/7	83/-	84/9	80/-
Swedish No 1, sizable	95/-	89/-	89/-	89/-	83 -	84/6	90/-	92/-	89/5	85/2
Canadian No 1 sizable	90 -	84/-	84/-	84/-	79 -	79/3	84/7	83	84/-	79/3
Butter.										
Copenhagen (*l*) Danish (crs p quint)	215 00	200 00	199 00	199 00	199 00	197 00	218 60	169 50	207 15	192 30
Leeuwarden Commission for butter quotations (*l*) Dutch (cents p kg) 1)	77	73	73	75	75	74	59 3/4	43	57 5/8	48 7/8
Antwerp (frs p kg)	21 35	21 10	21 05	21 85	21 40	21 30	17 00	15 95	19 00	17 90
Germany (*c*)(fixed prices Rm p 50 kg) 2)										
With quality mark	130 00	130 00	130 00	130 00	130 00	130 00	130 00	130 00	130 00	130 00
Creamery	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123 00
London (*d*) English creamery finest quality (shillings p cwt)	135/4	135 4	135 4	135/4	135 -	135/2	133 11	113 10	129/1	119/6
London Provision Exchange (*a*) (shillings p cwt)										
Danish creamery unsalted	122	115 6	115/-	115 -	115 6	114/7	124/4	102 3	119/1	112/9
Estonian unsalted	n q	n q	n q	n q	n q	n q	108 1	83 6	* 105/7	* 81/11
Latvian unsalted	n q	n q	n q	n q	n q	n q	n q	n q	n q	* 86/1
Dutch creamery unsalted	109/6	106/6	104/6	106/6	106	105/10	106 8	83 3	98/1	93/4
Argentine finest unsalted	n q	n q	n q	n q	n q	n q	* 105/10	n q	* 97/1	* 82/10
Siberian salted	108	105/6	105/6	n q	n q	n q	110/10	83 7	* 100/2	* 90/7
Australian finest salted	113/6	109/6	106/6	107/-	109	108 4	113/-	87 3	99/10	89/7
New Zealand finest salted	115	110 6	108 9	109	110 6	109 9	114 1	90	100/8	91/11
Cheese.										
Milan (lire p quintal)										
Parmigiano Reggiano 1st quality, production 1934 3)	n q	n q	n q	n q	n q	n q	860 00	720 00	775 45	724 30
Parmigiano Reggiano 1st quality production 1935 3)	4)1 050 00	4)1 050 00	960 00	960 00	950 00	950 00	818 00	630 00	734 25	614 60
Gorgonzola green mature choice 4)	650 00	650 00	650 00	650 00	650 00	650 00	567 00	492 50	569 80	508 90
Rome Roman Pecorino choice (lire p q)	n q	1 062 50	1 062 50	1 062 50	1 062 50	1 062 50	1 177 50	834 35	1 121 90	865 50
Alkmaar Edam 40 + (40 % butterfat, with the country s cheese mark) factory cheese small (florins p 50 kg)	20 00	19 50	20 00	21 50	19 75	19 80	19 35	12 37	17 56	14 84
Gouda (*e*) Gouda 45 + (wholemilk cheese with the country s cheese mark) home made, 1st qual (florins p 50 kg)	25 00	25 00	25 00	24 50	24 50	23 80	21 40	17 00	21 49	19 75
Kempten (*c*) (Rm p 50 kg)										
Soft cheese green 20 % butterfat	29 00	29 00	29 00	29 00	29 00	29 00	26 00	26 00	26 50	26 00
Emmenthal from the Allgäu whole milk cheese, 1st quality	80 00	80 00	80 00	80 00	80 00	80 00	80 00	77 00	80 00	77 00
London, Provision Exchange (*a*) (shillings p cwt)										
English Cheddar, finest farmers	n q	n q	n q	71/-	n q	* 84/6	n q	n q	* 80/	* 77/8
English Cheshire, Nat Mark Selected	82/10	79/4	85/2	85/2	81 8	82/3	69 4	55 5	78/3	80/5
Italian Gorgonzola (*d*)	98/-	98 -	98/-	99/2	100/4	99/8	n q	99/8	* 106/7	* 102/2
Dutch Edam, 40 + (*d*)	54/-	54/6	54/-	53/6	50	51/6	45 4	34 1	48/7	44/4
Canadian, finest white	n q	78/-	79/-	79/-	79 -	79/-	70/7	63 1	66/4	60/3
New Zealand finest white	72/3	70/9	72/-	74/-	74 6	74 2	61 2	44/5	60/8	48/9

* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a*) Average prices Thursday, and Friday morning — *b*) Thursday prices — *c*) Wednesday prices — *d*) Average prices for the week — *e*) Saturday prices

1) Home prices are increased by a consumption tax of 75 cents per kg from 9 to 22 May and 70 cents subsequently — 2) See this *Crop Report*, April 1934, p 306 — 3) Prices of 1934 cheese are compared for the preceding years, with the yearly and monthly averages of cheese made in 1932 33 respectively prices of 1935 cheese with 1933 34 respectively The yearly averages refer to the periods from Sept to August On and after 6 Oct 1936 to the end of Feb 1937 maximum prices for choicest quality, f o r — 4) Production of 1936 f o r, packing included to be sold to the retailer 900 00

Description	16 July 1937	July 1937	July 1937	5 June 1937	18 June 1937	Average June 1937	Average July 1936	Average July 1935	Commercial Season 1) 1936	Commercial Season 1) 1935
Eggs.										
Antwerp auction Belgian average qual (frs p 100)	48 00	48 00	47 00	44 00	37 00	38 00	42 80	44 25	50 80	48.35
Denmark (a) Danish for export (crs per quintal)		96 00	80 00	70 00	70 00	69 00	82 00	78 80	108 20	106 75
Roermond auction Dutch 57/58 gr each white (fl p 100)										
Fixed price for export into Germany		4 00	4 00	4 00	4 00	) 4 00	3 30	2 39	3 83	3 75
Price for other destinations		3 70	3 50	3 00	2 75	8) 2 77	3 00	2 54	3 46	2 97
Warsaw (b) Polish average weight 50 gr each various colours (zloty p 1440 including box)	97 20	97 20	97 20	93 60	90 00	89 10	77 15	90 00	* 96 05	104 43
Berlin (c) German big new laid (Rm p 100)										
marked « G I S » 65 gr each	9 25	9 25	9 25	9 25	9 25	9 25	10 35	10 20	10 77	10 57
marked « G I B » 55/60 gr each	8 25	8 25	8 25	8 25	8 25	8 25	8 95	8 95	9 26	9 34
London Egg Exchange (d) (sh p great hundred)										
English National Mark specials	16 9	16 9	15 5	14/3	13 9	13 11¾	16 1½	14 5¼	16/9	15/9
Belgian 15½ lb p 120	10 5¾	9 9	n q	n q	n q	n q	* 8/10	* 9/9¾	* 10/8¾	* 11/3¼
Danish 18 lb p 120	12 4½	9) n q	11 6	9) n q	9 9	* 10 1½	11/10¾	10/6½	12/8½	12 5
Northern Irish 18 lb p 120 2)	15 6	15 10½	14 6	13 3	12/10½	13/3	14/9¾	* 13 5½	* 14/8¼	15/1½
Dutch all brown 6( ) grams each	13 4½	13 4½	17 7½	11/9	12 1½	12	12 10	* 10/11	13/10	13/2¼
Polish 51/52 grams each	7 9	7 4¾	6 6	6 3¾	6 3¾	6 4¼	6 4¾	6/6	* 7/2½	* 7/1¼
Chinese violet	9	n q	n q	n q	n q	n q	n q	n q	* 9/2½	* 8 10½
Australian 16 lb p 120	n q	n q	n q	n q	n q	n q	n q	n q	* 12/8¾	* 11 2½

Ocean freight rates 3)

Shipments of wheat and maize.

Description	16 July 1937	July 1937	July 1937	5 June 1937	18 June 1937	Average June 1937	Average July 1936	Average July 1935	Commercial Season 1) 1935 36	Commercial Season 1) 1934 35
Rates in shillings per quarter										
Churchill to United Kingdom	n q	n q	n q	n q	n q	n q	n q	n q	n q	2/9
Montreal to United Kingdom	3	3 -	3	3/	3	3 0½	2	n 1/7½	* 2/1	* 1/7
St John to Liverpool 4)	n q	n q	n q	n q	n q	n q	n q	n q	* 2/1½	* 1/6
New York to Liverpool 4)	n q	n q	n q	n q	n q	n q	n q	1/6	* 1/6	1/6
Northern Range to U K Continent	2 9	2 9	2/9	2/9	2/9	2 10	* 2/-	1/6	1/10	n q
Gulf to United Kingdom 4)	4 6	4 6	4 6	4 6	4 6	* 4/6	n q	2/6	* 2/6	2/6
Rates in shillings per long ton										
Danube to Antwerp Hamburg	20	20	n q	n q	n q	n q	n 15/9	n q	* 15 7	* 14 7
Black Sea to Antwerp/Hamburg	16 6	16 6	n q	n q	n q	n q	11 -	9 6	* 10/2	* 9/11
North Pacific to United Kingdom	40	40 -	40	40/	40/-	40/	19 -	n q	20	* 19/3
La Plata Down River 5)/Bahia Blanca to U K Continent	n 31 6	n 31 6	n 31 6	n 31 6	n 30/	n 30 2½	n 16 9	15/9	16/6	15/2
La Plata Up River 6)/Necochea to U K Continent	33	33	33	33/	31/6	31 6	18	17/3	17/8½	16/10
Western Australia to U K Continent (in bags)	49 6	49 9	49 9	46	45 9	46 5¼	n 27	n q	26/5	* 24 6

Shipments of rice.

Description	16 July 1937	July 1937	July 1937	5 June 1937	18 June 1937	Average June 1937	Average July 1936	Average July 1935	Commercial Season 1) 1936	Commercial Season 1) 1935
Rates in shillings per long ton										
Saigon to Europe	46 3	46 6	47/6	48 6	49/	49/	30/9	19 8	26/3	* 22/7
Burma to U K /Continent	n q	n q	n q	n 45	n 45 -	n 45/	n q	n q	* 24/-	* 21/8

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* Indicates that the product or the ocean freight was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a)* Average prices for weeks commencing on Fridays indicated — *b)* Average prices for weeks commencing on preceding Mondays — *c)* Thursday prices — *d)* Prices on preceding Monday

1) Shipments of wheat and maize Aug July — 2) From Feb 1936 " Extra special quality — 3) Average rates for entire cargoes except where otherwise stated relating often to contracts made during a period extending back several months, to operate during the weeks specified — 4) Rates for parcels by liners — 5) ' Down River ' includes the ports of Buenos Aires La Plata and Montevideo — 6) ' Up River includes the ports on the Paraná River as far as San Lorenzo Cargoes from ports beyond San Lorenzo (Colastine Santa Fé and Paraná) are subject to an extra rate of freight — 7) Other monthly averages May 4 00 April 3 3 — 8) Other monthly averages May 70 April 2 90 — 9) Prices for eggs of 17 lb per 120 5 July 11 3, 21 June 9/3

AVERAGE MONTHLY PRICES BY COUNTRIES 1)

GROUPS	DESCRIPTION	June 1937	May 1937	April 1937	AVERAGE Jan - Mar 1937	April - June 1936	April June 1935	Agricultural year 2) 1935-36	1934-35
	GERMANY (Prices in Reichsmarks per quintal)								
A I	†Wheat (Berlin) 3)	20.80	20.80	20 80	20.80	21 20	20.77	20.48	20.18
	†Rye (Berlin) 3)	17.10	17.10	17.10	17 10	17 50	16.77	16.71	16.22
	†Barley, feeding (Berlin) 3)	18 00	17.80	17.60	17 20	17.80	16 67	16.95	* 16.14
	†Oats (Berlin) 3)	17.60	17 40	17 20	16.80	17 40	16.87	16.73	16.43
	§Potatoes, red (Berlin) 4)	n q	5 50	5 20	4.90	4.87	4.80	* 4.88	* 4.95
A II	†Oxen, live weight (Berlin)	84 00	84.00	82.00	82 67	84.00	81 53	83.83	76.28
	Calves, live weight (Berlin)	89 00	93 00	88.60	83 93	102 07	78 80	99.32	68.75
	†Pigs, 220 265 lb, live weight (Berlin)	101 00	98 00	98 00	98.00	101.00	91,13	101.28	93.87
	Milk, fresh, per hectol, (Berlin)	14 60	14.60	14.60	14.62	14.60	14.50	14.58	14.50
	†Butter with quality mark	260.00	260.00	260.00	260 00	260.00	260.00	260.00	260.12
	†Cheese, Emmenthal variety (Kempten)	160.00	160.00	160.00	160.00	160.00	151 83	159.00	146.75
	†Eggs, new laid, large, marked "G I S", per 100 (Berlin)	9 25	9 25	10 35	12.00	9 25	9 00	10.55	10.27
B I	Basic slag (Aachen) 5)	0 214	0.191	0.220	7) 0 220	0.230	0.223	0.235	0.24
	§Superphosphate of lime, 18 % (Hildesheim) 5)	0 298	0.314	0.314	0.312	0.288	0 288	0.288	0.28
	§Potash salts, 38 42 % (mine stations) 5) 6)	4 75	5.73	6.86	6.86	6.55	6.55	6.67	* 6.70
	Sulphate of Ammonia 5)	0 480	0.480	0.480	0.678	0.710	0.660	0.676	0.65
B II	Wheat bran (Hamburg)	12 25	12 25	12 25	12.25	12.25	12 30	12.26	12.13
	Linseed cake (Hamburg)	16 30	16 30	16 30	16.30	17.30	14 90	17.13	15.62
	Coconut cake (Hamburg)	14 70	14 70	14 70	14.70	17.40	14 90	17.22	15.44
	Groundnut cake (Hamburg)	15.80	15 80	15,80	15.80	16.90	14 10	16.70	14.66
	Crushed soya extraction residue (Hamburg)	15.50	15 50	15 50	15.50	15.50	12 60	15.29	13.19
	BELGIUM (Prices in Belgian francs per quintal)								
A I	Wheat (Antwerp)	146 50	150 25	155 20	135 90	108 75	80 65	98.05	68.60
	Rye (Antwerp)	133 60	* 134 00	n. q.	n. q	67 05	78 30	69.85	70.65
	Barley (Antwerp)	130 25	* 130 00	n. q	n. q.	85 45	96 95	82.75	82.45
	Oats (Antwerp)	134 75	129.25	125.80	114 85	95 85	95 95	92.25	76.25
A II	Oxen, live weight (Curegem-Anderlecht)	528 00	546 00	534.00	507 00	511 35	477 35	483.25	457.00
	Calves, live weight (Curegem-Anderlecht)	725 00	787 00	810.00	866 35	691 65	601 35	717.00	641.00
	Pigs, live weight (Curegem Anderlecht)	535 00	515 00	513.00	584 00	574 35	492 65	646.00	530.00
	Butter (Antwerp)	2,130 00	1,790 00	1,758 00	2,295 65	1,654 65	1,585 65	1,880.00	1,782.00
	Eggs per 100 (Antwerp)	38 00	32 25	33 20	41 75	36 65	32 62	52 65	42.80
B I	Basic slag (Brussels) 5)	1 38	1 38	* 1 32	1 66	1 60	8) n 1 60	1.55	1.35
	Superphosphate of lime (Brussels) 5)	1 80	1.80	1.80	1 81	1.60	1 68	1 60	1.50
	Sylvinite-Kainite, 14 % (Brussels)	29.00	29.00	29 00	29 00	27 00	15 00	24 50	14.65
	§Nitrate of soda, 15 ½ % (Brussels)	112.25	112 25	112.25	110 90	108 25	97.75	103.85	93.25
	§Sulphate of ammonia, 20 % (Brussels)	97.00	97.00	97.00	95 65	93 00	82.50	88.60	79.10
B II	Maize, Plata (Antwerp)	88 05	92 00	95 30	82 85	63 15	62 40	57 05	55.55
	Linseed cake (Brussels)	n q	107 50	n q.	n q.	88 35	89 15	88.30	89.05
	Coconut cake (Brussels)	116 00	116 00	115.00	111.00	96 65	94 00	97.60	85.35
	Groundnut cake (Brussels)	n q	* 111 00	n. q.	n q.	98 65	93 00	98.15	84.40
	Palm-kernel cake (Brussels)	n q.	n. q.	n. q.	n. q.	n. q.	n q	n. q	* 82 80
	DENMARK (Prices in Danish crowns per quintal)								
A I	Wheat (Copenhagen)	19 90	20 56	21 59	19 68	14 72	11 03	13.50	11.65
	Barley (Copenhagen)	18.27	18 90	19 81	18 83	12 65	12 55	12 06	13.48
	Oats (Copenhagen)	18 30	18 50	18 44	15 76	14 28	13.16	12.80	13.31
	†Cows, live weight (Copenhagen)	33 60	32 00	32 00	32 12	37.00	33 00	36.17	29.93
A II	†Pigs, live weight	162 00	174 00	171 60	161 17	171 53	166 67	165 75	161.90
	†Butter (Copenhagen)	197 00	187 25	196 40	207 33	183 03	157 97	205.05	179.65
	†Eggs	69 00	73 60	69 00	84 95	71 67	67 47	113.67	104.90

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* Indicates that the product was not quoted during part of the period under review — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*

1) Prices, for several countries, of plant (A I) and animal (A II) products sold by the farmer, also of fertilizers (B I) and concentrated feeding stuffs for livestock (B II) bought by the farmer, are published quarterly (Jan, April, July and Oct.). In cases where the market is not indicated, the price is the average for the whole country. — 2) July to June. — 3) See notes 2 and 4 on pp 554-555 — 4) Red and white potatoes from 1935 — 5) Prices per unit of fertilizer material in 100 kg — 6) Potash manure salt 40 %, from 16 Oct 1934, per 100 kg, at buyers' stations — 7) Revised prices Jan to March 0 220 — 8) June only.

DENMARK (*continued*)

Groups	Description	June 1937	May 1937	April 1937	Jan Mar 1937	April June 1936	April June 1935	Agricultural year 1935 36	Agricultural year 1934 35
B I	Superphosphate 18 %	6 50	6 50	6 50	6 47	6 35	6 45	6 21	6 28
	Potash salts 40 %	13 95	13 95	13 95	13 78	13 95	12 05	13 32	11 85
	Sulphate of ammonia	16 25	16 25	16 25	15 90	16 25	16 20	15 76	15 47
	Nitrate of lime	16 20	16 20	16 20	15 85	16 20	16 15	15 71	15 58
B II	Rye imported (Jutland)	20 55	20 60	20 50	18 86	12 79	9 84	12 03	11 25
	Maize, Plata (Jutland)	14 20	14 20	14 20	13 84	13 79	10 95	12.62	11 95
	Wheat bran Danish (Copenhagen)	14,70	15 62	16 20	15 38	11 00	10 07	10 63	10 80
	Cottonseed cake (Copenhagen)	16 94	16 62	17 50	17 87	13 45	13 12	13 89	14 19
	Sunflower seed cake (Copenhagen)	17 86	17 65	18 25	17 85	12 93	12 74	13 58	14 13
	Groundnut cake (Copenhagen)	17 88	17 50	17 97	18 61	15 57	13 70	15 11	14 35
	Crushed soya extraction residue (Copenhagen)	17 58	17 07	17 52	18 10	14 68	13 09	14 36	13 71

FRANCE (Prices in francs per quintal)

Groups	Description	June 1937	May 1937	April 1937	Jan Mar 1937	April June 1936	April June 1935	Agricultural year 1935 36	Agricultural year 1934 35
A I	†Wheat (Paris) 1)	155 50	154 00	152 50	149 50	97 35	79 65	87 25	96 50
	Rye (Paris) 2)	n q	123 00	126 00	123 00	82 65	60 35	68 85	* 61 35
	Barley, malting (Paris) 2)	n q	125 00	131 00	129 65	84 65	61 35	69 75	65 65
	†Oats (Paris)	122 15	122 30	120 85	122 65	79 85	46 00	62 45	49 80
	§Wine red, 10° (Montpellier) 3)	5) 15 40	) 14 90	5) *14 75	) 15 10	5) 8 30	4 80	—	—
A II	†Beef, dead weight 2nd quality (Paris)	908 00	903 00	825 00	765 65	583 35	500 00	521 00	488 00
	†Mutton, dead weight 2nd quality (Paris)	1 153 00	1 180 00	1 210 00	1 176 30	957 65	993 00	994 00	1 032 00
	†Pigs, live weight (Paris)	608 00	604 00	589 00	606 65	546 00	343 00	455 00	370 00
B I	§Basic slag 18 % (Thionville)	18 55	18 55	18 55	18 55	18 55	20 70	18 90	21 65
	§Superphosphate 14 % (North and East)	31 30	31 30	31 30	30 65	24 10	26 75	24 90	26 75
	§Sylvinite, rich, 18 %	16 30	16 30	16 30	16 30	15 30	15 00	14 90	15 00
	Nitrate of soda (Dunkirk)	92 50	92 00	91 00	88 50	79 00	83 85	* 76 65	* 82 70
	Sulphate of ammonia 20 4 %	93 00	92 50	92 00	89 50	83 00	85 85	81 50	* 85 65
B II	Linseed cake (North)	95 50	92 50	89 00	95 40	65 10	55 75	61 65	67 05
	Coconut cake (Marseilles) 4)	n q	n q	n q.	n q	* 78 00	55 15	* 64 50	58 75
	Groundnut cake (Marseilles)	6) 92 00	6) 92 00	6) 90 00	) 93 50	52 85	43 00	52 20	49 15

GREAT BRITAIN (Prices in shillings and pence "A" per cwt· "B" per long ton)

Groups	Description	June 1937	May 1937	April 1937	Jan Mar 1937	April June 1936	April June 1935	Agricultural year 1935 36	Agricultural year 1934 35
A I	Wheat	9/9	9/10	9 11 3/4	9 3 1/2	6 7 3/4	5/3 1/4	5/11 1/2	5/0 1/2
	Barley, feeding	9/7 1/2	10/1 3/4	10/1 3/4	10/	7/5 1/4	7 1	8/1 1/4	8/3 1/2
	Oats	9 0 1/4	8 10 3/4	8 5 1/2	8/3 1/4	6/1 1/2	7/2 1/4	6/2 1/2	6/9 1/2
	§Potatoes (London)	*10/5	10/1 3/4	10 1 1	8 9 /4	* 7/11 3/4	6/2 1/2	* 7/5 1/2	* 5/8 1/2
A II	†Beef, dead weight (London)	80 6	77/3	68/3	59 10	64/10	63 10	61/3	63/7
	†Mutton, dead weight (London)	105/7	105/7	105 -	85 11	80/3 1/4	85/6	74/8	85/9
	†Pork, dead weight (London)	68/10	74 4	76 1	76/11	*73/6	68 6	* 69/1 1/2	72/11
	Butter (London)	135/2	135/4	130/8	130/10	121/0 1/4	108/6	125/-	110/8
	†Cheese, Cheddar (London)	*84/6	n q	91/10	87/1	* 82/1 1/2	86/-	* 72/11	83/-
	Eggs, new laid per 100 (London) .	11/7 1/4	9/3 1/4	8/11 1/2	12/9 1/4	9/9 1/4	9/3 1/4	13/7 1/2	12/9 1/2
B I	§Basic slag 14 % (London)	46/-	46/-	46/-	45/-	43/-	43/-	43/-	43/-
	Superphosphate, 16 % (London)	60/-	60/-	60/-	60/-	56/-	56/-	56/-	56/-
	Kainite 14 % (London)	55/-	55/-	55/-	55/-	55/-	54/-	54/11	54/6
	§Nitrate of soda, 15 ½ % (London)	152/-	152/-	152/-	152/-	152/-	152/-	152/-	152/6
	§Sulphate of ammonia 20 6 % (London)	145/-	145/-	145/-	143/6	145/-	145/-	141/4	141/4
B II	Bran, British (London)	125/3	143/9	152/-	155/9	104/8	103/6	111/7	117/-
	Bran, middlings, imported (London)	142/-	145/2	147/-	148/6	101/11	102/11	106/3	115/1
	Linseed cake, English (London)	198/3	204/5	204/3	202/-	160/9	165/3	160/8	182/1
	Cottonseed cake (London)	119/-	122/-	121/6	116/11	95/3	92/-	93/5	96/1
	Palm-kernel cake (Liverpool)	*151/-	n q	n q	7) 154 -	125/-	125/-	122/5	124/5

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*, †, § See notes on page 559

1) See note 3 on page 554 — 2) Quotations on last day of the month — 3) Price per degree and hectolitre — 4) Coudekerque prices from January 1935 — 5) Wine of 9° (March 1937 average 15 00) — 6) Prices in Coudekerque — 7) January only

Groups	Description	June 1937	May 1937	April 1937	Jan.-Mar 1937	April-June 1936	April June 1935	Agricultural year 1935-36	Agricultural year 1934-35
					Average				

ITALY (Prices in lire per quintal)

Groups	Description	June 1937	May 1937	April 1937	Jan.-Mar 1937	April-June 1936	April June 1935	1935-36	1934-35
A I	†Wheat, soft (Milan)	131.00	124.00	124.00	124.00	119 25	110.45	111.90	94.95
	Wheat, hard (Catania)	143.50	138.00	138.00	134.35	132.35	123.65	109.60	106.50
	Oats (Milan)	107.50	* 107.50	106.75	102.00	* 97.40	n 67.50	* 94.40	59.90
	†Maize (Milan)	82.00	82.00	82.00	82.00	85.05	75.10	83.00	61.55
	Rice, Maratelli (Milan)	155.50	155.50	155.50	149.40	158.35	132.10	152.20	128.00
	§Hemp, fibre (Milan)	544.00	544.00	544.00	* 544.00	540.00	358.00	502.50	317.80
	§Olive oil "Sopraffino locale" (Bari)	760.00	760.00	760.00	718.65	578.35	556.00	568.00	539.00
	§Wine, ordinary, 11°, hectol. (Bari)	65.00	50 00	50.00	50.00	50 00	66.65	57.10	63.00
A II	†Oxen live weight (Milan	437.50	446.00	402.50	370.00	348.00	251.65	284.90	252.00
	Lamb, dead weight (Rome)	705.00	700.00	683.00	761.35	713.65	613.00	* 641.05	* 601.00
	Pigs, live weight (Milan)	570.00	550.00	550.00	528 65	n. q.	353.65	* 409.00	355.00
	†Cheese, Parmigiano-Reggiano (Milan)	950.00	942.50	918.00	848.75	757.40	623 65	704.00	629.00
	Eggs, new laid, per 100 (Milan)	40.40	37 50	36 25	42.65	37 25	29 40	47.20	36.45
	Wool, Italian (Rome)	2,602.00	n q.	2,065.00	2,065.00	*2,126.00	1,143.00	1,809.90	933.00
B I	Superphosphate of lime, 14-16 % (Milan)	22.45	22.70	22.70	21.90	18 70	18.95	19.15	19.80
	Chloride of potash (Milan)	2) 68.00	n. 58.00	n. 58.00	n. 58.00	55 30	43.50	51.30	53.35
	Nitrate of lime, 15-16 % (Milan)	85.95	83.90	83.90	82.45	80.30	78 15	76.75	74.25
	Sulphate of ammonia, 20-21 % (Milan)	82.30	81.50	81.50	80.45	79.30	77.00	75.55	74.25
	Cyanamide of calcium, 15-16 % (Milan)	64.25	63.25	63.25	62.10	58.35	57.00	55.70	55.80
	Copper sulphate (Genoa)	176.00	175.20	174.25	3) 169.10	132.00	100 85	130.00	89.25
B II	Wheat-bran (Genoa)	40.00	43 90	45.50	48.00	42.45	48 15	51.80	44.95
	Rice bran (Milan)	49.00	50 40	51.75	52.65	45.30	50 55	57.00	43.45
	Linseed cake (Milan)	84.00	82 90	83.00	85.50	76.20	61 00	78.00	59.25
	Groundnut cake (Milan)	55.00	55.00	55.00	61 15	70.85	44 85	68.10	39.40
	Rapeseed cake (Milan)	n. 36.50	n 36.50	n. 36.50	36.50	38.30	39.25	38.65	35.55

NETHERLANDS (Prices in florins per quintal)

Groups	Description	June 1937	May 1937	April 1937	Jan.-Mar 1937	April-June 1936	April June 1935	1935-36	1934-35
A I	Wheat (Groningen)	10.11	9.97	9.85	9.68	11.20	12 20	10.99	11.90
	Rye (Groningen)	n. q.	8.20	8.62	8.40	* 7.94	7.27	* 7.09	* 7.37
	Barley (Groningen)	7 95	7 96	8.82	8 29	5 33	5 11	4.83	5.32
	Oats (Groningen)	7.03	7.09	7.60	7.43	6 38	6 43	6.01	6.17
	Peas (Rotterdam)	n q.	13.50	13 56	14.66	n. q.	9.47	* 9.50	* 9.36
	Flax, fibre (Rotterdam)	74.00	75.50	75.00	74.67	50.10	59 33	55.84	52.87
	§Potatoes (Amsterdam)	...	4 02	3.53	4) 3.55	3.71	5.25	3.80	5.34
A II	Beef, dead weight (Rotterdam)	79.00	76.00	72.50	69.00	55 67	52 33	50.62	55.92
	†Pigs, live weight (Rotterdam)	47.50	48.00	47.50	46.00	32 83	35.17	37.87	33.37
	†Butter for export (Leeuwarden)	74.00	70.75	69 25	67.17	49.21	37.04	53.25	44.00
	†Cheese, Edam 40 % (Alkmaar)	39.60	34.62	32.90	36.41	37 33	23.52	34.70	31.32
	Cheese, Gouda 45 % (Gouda)	47.60	41 90	40.80	44.42	40.35	30 20	43.60	39.34
	†Eggs, per 100 (Roermond)	2.87	2.76	2 94	3 58	2 48	2 36	3.19	3.44
B I	Basic slag 1)	...	...	...	0.126	0.093	0.090	* 0.090	0.102
	Superphosphate, 17 %	. .	...	...	2.12	* 1.82	1.64	* 1.76	1.68
	Kainite 1)	0.112	0.111	0 111	0.110	0.104	0.068	0.095	0.068
	Nitrate of soda 15 ½ to 16 %	...	...	...	6.04	* 6 30	6.59	* 6.03	6.24
	Sulphate of ammonia, 20 ½ %	...	..	...	5.14	5.33	5 11	5.09	4.90
B II	Maize (Rotterdam)	6.25	6.50	7.14	7 12	5.21	4 59	4.84	5.03
	Linseed cake, Dutch	8.35	8 55	8 80	8.02	6.50	5 19	5.93	6.20
	Coconut cake, Dutch	8.15	8 35	8.45	7.89	5.76	5 69	5.51	6.01
	Groundnut cake, Dutch	7.85	7.85	7.95	7.87	6.58	4 78	5.78	5.51

POLAND (Prices in zlotys per quintal)

Groups	Description	June 1937	May 1937	April 1937	Jan.-Mar 1937	April-June 1936	April June 1935	1935-36	1934-35
A	Wheat (Warsaw)	31.46	31.08	31.42	29.49	22 97	17.38	19.91	18.63
	†Rye (Warsaw)	26.78	24.74	24 72	23.83	14.82	13.91	13.13	14.99
	†Barley (Warsaw)	n q	n. q.	26.70	26 67	15.81	17.36	* 15.90	19.67
	Oats (Warsaw)	26 06	23.02	22 87	20.48	15.72	15.89	15.14	15.31
A II	Oxen live weight (Warsaw)	74.25	72.40	75.50	70.00	65 00	58 33	63.20	* 60.00
	Pigs, live weight (Warsaw)	96.00	95.00	98.75	98 67	92.73	60.33	88.74	66.92
	Butter (Warsaw)	258.00	333.00	303.00	309.67	257 67	257.67	292.18	260.00
	†Eggs, new laid, per 100 (Warsaw)	6.19	5.21	5,50	8.90	5 07	5.24	7.25	[illegible]

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*, †, §: see notes on page 559

1) Prices per unit of fertilizer material in 100 kg. — 2) Base 50/52 K²O — 3) March: 173 00, February: 172 30; January: 162.00. — 4) March: 3.50.

Groups	Description	Average							
		June 1937	May 1937	April 1937	Jan.-Mar. 1937	April-June 1936	April-June 1935	Agricultural year 1935-36	Agricultural year 1934-35
	POLAND (*continued*)								
B I	Superphosphate 1)	..	0.65	0.65	4) 0.64	0.65	0.61	0.62	0.60
	Potash salts, 20 %	...	7.30	7.10	5) 7.74	7.51	8.95	8.00	8.60
	Sulphate of ammonia	.	20.70	20.70	20.70	20.70	20.70	20.70	20.70
B II	Wheat-bran (Warsaw)	16.19	15.12	15.95	16.06	11.49	11.20	10.35	11.03
	Rye-bran (Warsaw)	18.37	16.37	15.60	15.27	11.41	10,05	9.34	9.72
	Linseed cake (Warsaw)	21.06	21.12	24.05	25.02	17.60	18.00	16.86	17.69
	Rapeseed cake (Warsaw)	16.81	16.81	18.15	19.60	14.77	12.35	13.73	13.20
	SWEDEN (Prices in Swedish crowns per quintal)								
A I	Wheat (Stockholm)	n. q.	* 20.42	20.35	19.99	* 16.50	17.99	* 16.32	17.02
	Rye (Stockholm)	n. q.	* 18.79	19.00	19.02	* 15.50	16.66	* 15.11	15.96
	Barley (Stockholm)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12.89
	Oats (Stockholm)	n. q.	* 17.00	16.62	15.67	12.11	11.66	* 11.65	11.75
A II	Cows, live weight (Göteborg)	..	57.00	56.00	6) 55.67	58.33	52.33	57,58	48.00
	Pigs, live weight (Göteborg)	.	81.00	80.00	7) 89.00	86.33	78.33	88.25	65.50
	Butter (Malmo)	250.00	250.00	250.00	248.00	215.00	230.00	215.33	230.00
	Eggs (Stockholm)	110.00	102.50	102.50	134.17	86.73	73.07	124.17	106.20
B I	Superphosphate, 20 %	7.00	7.00	7.00	7.00	7.00	7.80	7.36	7.80
	Potash salts, 20 %	..	...	.		8.35	6.05	7.53	6.05
	Nitrate of soda	n. q.	n. q.	n. q.	n. q.	17.80	n. q.	* 17.72	n. q.
	Calcium cyanamide	n. q.	n. q.	n. q.	n. q.	16.80	n. q.	* 16.72	n. q.
B II	Maize, Plata	15.86	16.04	16.24	15.82	15.48	15.69	15.25	* 15.23
	Wheat-bran	13,81	14.76	15.05	15.03	13.64	12.70	13.18	12.50
	Groundnut cake	18.90	19.04	19.32	20.43	17.98	17.04	18.20	16.46
	Cottonseed cake	n. q.	17.75	* 17.75	n. q.	* 15.34	15.33	* 16.19	* 14.67
	Soya meal	18.43	18.59	18.77	19.53	17.09	16.68	17.51	15.91
	CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)								
A I	Wheat (Prague) 2)	175.00	173.00	171.00	167.00	177.00	180.20	170.95	173.10
	Rye (Prague) 2)	137.00	137.00	135.00	131.00	139.15	138.50	133.05	132.60
	Barley, malting (Prague) 2)	141.00	139.50	137.00	139.50	135.50	135.50	131.70	131.35
	Oats (Prague) 2)	124.50	122.50	121.00	118.00	122.50	122.80	118.25	119.10
	Potatoes, edible (Prague)	21.50	26.50	25.50	25.85	38.65	44.50	54.35	48.55
	Hops (Zatec)	1,480.00	1,785.00	1,865.00	1,981.65	2,525.65	4,085.00	2,969.40	4,095.00
A II	Beef, dead weight (Prague)	1,050.00	1,050.00	1,050.00	1,075.00	991.65	791.65	914.50	744.00
	Veal, dead weight (Prague)	800.00	850.00	900.00	891.65	904.00	833.35	839.50	663.00
	Pork, dead weight (Prague)	840.00	852.00	895.00	930.65	941.65	926.35	925.00	813.00
	Butter (Prague)	1,850.00	1,800.00	1,650.00	1,591.65	1,700.00	1,850.00	1,765.85	1,790.00
	Eggs, new laid per 100 (Prague)	48.33	48.33	47.50	62.22	47.75	41.25	55.40	51.35
B I	Basic slag, 15 %	35.75	34.85	35.75	35.45	34.85	34.85	34.85	34.70
	Superphosphate, 16 to 18 %	52.90	52.90	50.15	49.60	48.50	48.50	48.50	48.50
	Kainite, 14 %	22.35	24.35	23.90	23.25	21.90	19.15	20.95	18.10
	Nitrate of soda	138.00	138.00	138.00	* 138.00	130.00	130.00	* 130.00	* 129.15
	Sulphate of ammonia, 20 ½ %	123.40	123.40	123.40	123.40	123.40	123.40	122.40	122.00
B II	Maize, imported	108.50	108.50	108.50	129.00	105.50	107.85	107.30	102.70
	Wheat-bran (Prague) 3)	105.00	105.00	105.00	105.00	105.00	92.80	103.50	95.75
	Rye-bran (Prague) 3)	103.00	103.00	103.00	103.00	103.00	90.80	101.50	93.95
	Crushed soya (Prague, delivered Lovosice) 3)	142.00	142.00	142.00	142.00	142.00	144.65	142.25	* 132.20
	Rapeseed cake (Prague, delivered Lovosice) 3)	117.50	117.50	117.50	117.50	117.50	120.15	117.75	* 109.30
	Linseed cake (Prague, delivered Lovosice) 3)	139.50	139.50	139.50	139.50	139.50	142.15	139.75	* 133.25
	Groundnut cake (Prague, delivered Strekov) 3)	150.00	150.00	150.00	150.00	150.00	152.65	150.25	* 133.80

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1) Prices per unit of fertilizer material in 100 kg — 2) Producers' fixed prices, f. o. r. Prague — 3) Average wholesale market prices, until the end of July 1934, manufacturers' selling prices during August-November 1934, wholesalers' selling prices subsequently — 4) Revised averages March 0.65, February 0.64 — 5) Revised averages: March and February: 7.80 — 6) March and February, 55.00 — 7) March 83.00 February 87.00

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL (*)

DESCRIPTION	June 1937	May 1937	April 1937	Mar 1937	Feb 1937	Jan 1937	June 1936	June 1935	Year 1936	Year 1935
Wheat.										
Budapest Tisza	11 97	12 27	12 53	11 99	12 11	12 84	8 60	9 72	9 75	9 71
Winnipeg No 1 Manitoba	13 81	14 66	15 52	15 15	14 39	13 89	9 03	9 19	10 57	9 53
Chicago No 2 Hard Winter	14 02	14 68	15 66	15 86	15 69	15 39	10 72	10 57	12 79	12 08
Buenos Aires Barletta	13 25	13 87	13 93	13 11	11 40	11 28	10 34	6 95	10 86	7 57
Berlin Home grown	25 68	25 68	25 68	25 68	25 68	25 68	20 62	25 69	25 48	25 14
Hamburg (c i f)										
Manitoba No 1	16 33	17 28	18 09	18 26	17 33	17 22	11 17	10 66	12 91	11 44
Barusso	16 15	16 80	17 02	15 60	13 74	13 96	11 13	8 09	12 18	8 74
Antwerp										
No 1 Manitoba (Atlantic)	15 92	16 94	18 43	17 33	16 67	16 98	10 65	10 70	12 60	11 23
Barusso	15 57	16 16	16 96	14 76	14 24	14 67	10 87	8 00	12 12	8 58
Paris Home grown	21 19	21 08	20 96	21 28	21 30	21 14	19 95	16 34	21 51	16 53
Liverpool and London (c i f)										
French (on sample)	n q	n q	n q	n q	n q	n q	8 88	7 35	* 9 21	* 7 08
No 1 Manitoba (Pacific)	16 09	17 05	17 94	17 77	16 75	16 78	10 61	10 38	12 52	11 10
No 3 Manitoba (Pacific)	15 34	16 12	16 93	16 66	15 53	15 92	10 14	9 43	11 98	10 16
No Hard Winter	15 13	n q	16 01	n q	n q	n q	n q	n q	n q	n q
Rosafe	n q	15 68	15 97	13 86	13 39	13 92	n q	8.14	* 12 51	8 64
Choice White Karachi	14 61	15 68	16 04	15 51	14 86	15 22	11 10	n q	12 90	n q
West Australian (cargoes)	14 98	16 18	16 26	15 71	14 81	15 15	10 67	9 40	12 28	9 61
Milan Home grown soft	21 10	19 97	19 97	19 97	19 97	19 97	29 01	28 04	26 71	26 63
Rye.										
Berlin Home grown	21 11	21 11	21 11	21 11	21 11	21 11	22 01	20 75	20 68	20 29
Hamburg Plata	16 19	16 32	15 95	14 42	13 98	13 21	6 65	5 94	7 81	6 31
Budapest Home grown	12 47	12 47	12 28	11 31	11 33	10 98	7 15	6 56	8 07	7 65
Warsaw Home grown	15 57	14 38	14 37	14 37	14 15	12 91	8 77	7 66	8 86	7 77
Minneapolis No	11 88	13 17	13 51	13 21	13 48	13 44	7 04	6 68	8 53	6 72
Barley.										
Braila Average quality				7 67	n q	n q	5 30	6 31	5 83	6 67
Prague Malting average quality	15 16	14 99	14 73	14 47	14 73	15 45	17 34	17 34	* 16 43	* 16 85
Winnipeg No 4 Western	8 47	9 37	9 95	10 67	10 98	10 96	5 04	5 09	6 60	5 11
Minneapolis No 2 Feeding	8 38	9 74	11 04	11 11	12 11	12 49	5 07	6 07	8 00	7 32
Berlin Home grown fodder	22 22	21 98	21 73	21 48	21 23	20 99	22 39	20 62	20 99	20 33
Antwerp Danubian	11 66	11 74	12 01	11 28	11 85	11 90	8 00	8 15	8 93	7 97
Liverpool and London (c i f)										
No 3 Canadian Western	11 82	12 56	12 61	n q	n q	n q	7 45	7 39	* 8 98	7 88
Plata	11 45	11 89	12 25	11 23	10 78	10 87	7 10	6 74	7 82	6 68
Iranian	10 44	10 47	11 23	10 66	10 36	10 87	* 6 39	6 53	7 58	6 56
Oats.										
Winnipeg No 2 White	11 19	11 19	11 49	11 12	10 96	10 71	6 66	8 00	7 97	7 67
Chicago No 2 White	10 44	11 47	11 57	10 73	11 15	11 41	6 54	8 68	8 12	8 72
Buenos Aires Current quality	6 31	6 86	6 87	6 67	6 43	6 16	6 05	5 38	6 23	* 5 74
Berlin Home grown	21 73	21 48	21 23	20 99	20 74	20 49	21 89	20 87	21 48	20 44
Paris Home grown	16 64	16 74	16 61	16 80	17 23	18 09	16 31	9 22	16 52	9 62
London and Liverpool (c i f) Plata	9 15	9 36	9 38	8 64	8 36	8 47	7 12	6 82	7 60	7 15

(*) The gold franc adopted is that of the former Latin Monetary Union Up to the end of September 1936 prices in gold francs were obtained by converting original prices into Swiss francs since the latter could still be regarded as gold francs After the devaluation of the Swiss franc (28 September 1936) original prices were converted into American dollars adopting a coefficient of 3 061 which can be considered as the coefficient existing between the current dollar and the former franc of the Latin Monetary Union In cases where the difference between the rates of exchange of the national currency considered, and the parity with the dollar did not, during a given month, reach 2½ %, the monthly average has been converted on the basis of parity In other cases the average rate of exchange for the month has been utilized

Description	June 1937	May 1937	April 1937	Mar 1937	Feb 1937	Jan 1937	June 1936	June 1935	Year 1936	Year 1935
Maize										
Braila Home grown				6 39	n q	5 90	5 32	7 21	5 68	6 55
Chicago No 3 Yellow	14 58	16 37	16 06	13 77	13 47	13 48	7 81	10 17	10 18	9 88
Buenos Aires Yellow Plata	6 33	6 69	6 55	6 75	6 52	5 96	5 17	4 54	5 32	4 74
Liverpool and London (c i f)										
Yellow Plata	8 83	9 16	9 26	8 75	8 35	8 05	6 39	5 64	6 81	5 82
No 2 White African	9 45	9 65	n q	n q	n q	n q	n q	* 6 18	n q	* 6 26
Milan Home grown	13 21	13 21	13 21	13 21	13 21	13 21	20 76	20 73	19 15	18 98
Rice.										
Milan Originario	20 61	20 61	20 55	20 41	20 35	19 45	30 19	32 20	28 12	30 90
Rangoon No 2 Burma				8 44	8 46	8 82	8 44	8 91	8 23	8 50
Saigon No 1 Round white	8 86	8 67	8 78	8 95	9 87	11 18	8 85	8 87	9 07	8 49
London (c i f)										
No 2 Burma	13 19	13 29	13 26	13 00	13 39	14 01	11 58	11 84	11 71	11 41
No 1 Saigon	13 23	13 35	13 45	13 00	13 66	15 15	11 36	11 28	12 02	11 05
Tokyo Chumai		20 26	19 50	18 85	18 48	18 03	19 96	17 74	18 71	18 12
Cotton.										
New Orleans Middling	84 76	88 54	93 94	95 29	87 86	88 13	82 65	80 85	81 16	80 48
Bombay (terminal market) M g Broach f g	74 11	74 56	76 12	76 13	71 38	72 70	71 63	73 45	68 53	73 30
Alexandria Sakellaridis f g f	130 11	133 06	147 01	145 19	125 82	129 57	115 46	99 60	118 73	104 98
Liverpool										
Middling american	97 96	101 57	104 75	108 07	100 43	99 33	98 61	94 82	93 70	93 03
M g Broach f g	n 82 42	n 83 34	n 83 67	n 82 53	n 78 14	n 79 74	77 52	79 64	75 60	79 15
Sakellaridis f g f	146 25	157 22	166 09	161 49	137 57	141 54	127 53	112 22	139 23	119 93
Beef.										
Berlin Domestic (live weight)	103 70	103 70	101 23	101 23	101 23	103 70	104 47	101 02	103 83	101 00
Paris Domestic (dead weight)	123 71	123 61	113 41	113 14	105 44	107 69	119 57	104 34	112 77	97 03
London Domestic (dead weight	119 67	115 21	100 78	89 25	86 40	89 23	106 86	100 06	93 83	90 74
Mutton										
Paris Domestic (dead weight)	157 10	161 53	166 34	176 12	164 72	160 40	186 35	197 92	186 14	204 71
London Domestic (dead weight	156 95	157 38	155 05	141 60	125 52	112 94	* 126 01	116 60	118 40	120 27
Pork.										
Denmark Domestic (live weight)	109 22	117 43	115 25	107 77	105 64	109 94	115 71	117 43	115 60	108 89
Rotterdam Domestic (live weight)	79 94	80 71	79 60	78 68	76 13	76 26	70 82	68 74	72 91	80 46
Berlin Domestic (live weight)	124 69	120 99	120 99	120 99	120 99	120 99	125 62	113 37	124 84	119 29
Paris Domestic (live weight)	82 84	82 68	80 83	83 41	84 78	90 41	113 68	70 03	103 95	75 97
London Domestic (dead weight)	102 32	110 86	112 41	111 56	113 06	115 96	n q	100 06	* 111 31	104 21

DESCRIPTION	June 1937	May 1937	April 1937	March 1937	Feb. 1937	Jan. 1937	June 1936	June 1935	Year 1936	Year 1935
Butter.										
Copenhagen: Danish	132.82	126.37	131.91	146.48	139.73	129.72	137.88	111.02	140.86	129.78
Leeuwarden: Dutch	124.54	118.97	116.05	113.41	114.61	109.36	119.25	83.84	112.47	101.80
Hamburg: Schleswig-Holstein	320.99	320.99	320.99	320.99	320.99	320.99	323.37	321.10	321.38	321.38
London:										
Danish	170.35	164.34	169.71	185.75	175.89	167.39	176.09	150.42	178.59	167.62
Argentine	n. q.	n. q.	141.53	133.15	127.25	134.13	n. q.	n. q.	* 145.51	* 123.10
Australian, salted	161.06	157.39	153.59	141.61	126.76	138.69	162.35	126.17	149.77	133.27
New Zealand, salted	163.16	159.13	154.45	141.37	126.88	138.94	164.25	129.53	150.92	135.38
Cheese.										
Milan: Parmigiano-Reggiano	152.99	151.78	147.83	138.29	134.87	136.88	189.69	158.02	172.75	163.90
Alkmaar: Edam 40 +	66.68	58.21	55.14	62.97	62.74	57.18	84.11	49.74	69.62	61.84
Kempten: Emmenthal variety	197.53	197.53	197.53	197.53	197.53	197.53	199.00	190.19	197.71	189.68
London:										
English Cheddar	125.62	n q.	135.62	129.11	128.23	127.85	n. q.	128.29	119.56	115.33
Canadian	117.45	115 15	111.01	106.43	105.51	104.94	100.77	93.98	99.41	89.52
New Zealand	110.29	107.82	100 30	88.52	77.51	80.55	90.88	66.13	90.95	72.52
Eggs (per 100).										
Denmark: Danish (per quintal)	46 52	49 67	46.34	60.86	56.16	55.88	52.66	51.29	73.46	72.09
Roermond: Dutch, for export	4 83	4 64	4.93	6.14	6.31	5.55	5.29	5.04	6.24	6.45
Warsaw: Polish, average quality	3.60	3 06	3.14	4.46	5.98	5.08	3.04	3.27	4.02	4.21
Berlin: German, big, special quality	11 42	11.42	12.78	14.82	14.82	14 82	11.50	11.11	13.31	13.14
London:										
Danish	6.37	5 84	5 57	7.40	7 37	7.13	6.54	6.24	8.05	7.82
Dutch	7 55	6.94	6.59	7.63	8.79	8.88	7.41	6.47	8.77	8.30

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR 1).

NATIONAL CURRENCIES	Parity (1)	Actual Exchange Rates					Percentage deviation from parity with U. S. dollar: premium (+) or discount (—)				
		16 July 1937	9 July 1937	2 July 1937	25 June 1937	18 June 1937	16 July 1937	9 July 1937	2 July 1937	25 June 1937	18 June 1937
Germany: reichsmark	40.332	40.212	40 146	40 100	40.091	40 082	— 0.3	— 0.5	— 0.6	— 0 6	— 0.6
Argentina: paper peso	71.959	n. 33 097	n. 33.042	n. 32.927	n. 32.918	n. 32.914	— 54.0	— 54.1	— 54.2	— 54.3	— 54.3
Belgium: belga	2) 23.542 3) 16.950	16.834	16.838	16.839	16.879	16.914	— 28 5 — 0.7	— 28.5 — 0.7	— 28.5 — 0.7	— 28.3 — 0.4	— 28.3 — 0.4
Canada: dollar	100.000	99.800	99.789	99.833	99.871	99 984	— 0.2	— 0.2	0.0	0.0	0.0
Denmark: crown	45.374	22.169	22.126	22.060	22.042	22.042	— 51.1	— 51 2	— 51.4	— 51.4	— 51.4
Spain: peseta	32.669	n. 5.162	n. 5.110	n. 5.083	n. 5.178	5.250	— 84.2	— 84.4	— 84.4	— 84.2	— 83.9
France: franc 4)	6.633	3.832	3.869	3 839	44.52	4.453	— 42.2	— 41.7	— 42.1	— 32.9	— 32.9
Great Britain: £ sterling 5)	8.2397	4.9665	4.9569	4.9429	4.9381	4.9383	— 39.7	— 39·8	— 40 0	— 40.1	— 40.1
Hungary: pengö	29.612	n. 19.772	n. 19.760	n. 19.772	n. 19.770	n. 19.772	— 33.2	— 33.3	— 33.2	— 33.2	— 33.2
India: rupee	61.798	37 479	37.384	37.297	37.271	37.279	— 39.4	— 39.5	— 39.2	— 39.7	— 39.7
Italy: lira	2) 8.911 6) 5.263	5.260	5.260	5.260	5.261	5.261	— 41.0 — 0.1	— 41.0 — 0.1	— 41.0 — 0.1	— 41.0 — 0.1	— 41.0 0.0
Japan: yen	84.396	28.882	28.767	28.720	28.707	28.717	— 65.8	— 65 9	— 66.0	— 66.0	— 66.0
Netherlands: florin	68.057	55.092	54.978	54.976	54.982	54 983	— 19.1	— 19.2	— 19.2	— 19.2	— 19.2
Poland: zloty	18.994	18.900	18.920	18 932	18.927	18.932	— 0.5	— 0.4	— 0.3	— 0.3	— 0.3
Romania: leu	1.013	n. 0.733	n. 0.721	n. 0.730	n. 0.725	n 0 730	— 27.6	— 28.8	— 27.9	— 27.9	— 27.9
Sweden: crown	45.374	25.600	25.552	25.477	25.457	25.460	— 43.6	— 43.7	— 43.9	— 43.9	— 43.9
Switzerland	32.669	22.920	22.883	22.875	22.908	22.916	— 29 8	— 30.0	— 30.0	— 29.9	— 30.9
Czechoslovakia: crown	2) 5.016 7) 3.512	3.485	3.486	3.484	3.485	3.485	— 30.5 — 0.8	— 30.5 — 0.7	— 30.5 — 0.8	— 30.5 — 0.8	— 30.5 — 0.8

1) Parities and current rates are both expressed in U. S. cents per unit of the foreign currency. (The £ sterling is expressed in dollars). The dollar contains 0.8886706 grams of fine gold, i. e. 40.9 % less than formerly. — 2) Former parity. — 3) New parity as from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — 5) Quotations for the Egyptian pound are omitted, its relationship with £ sterling being fixed (97 1/2 piastres = 1 £ sterling). — 6) New parity as from 5 Oct. 1936. — 7) New parity as from 10 Oct. 1936.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural products and other price-indices of interest to the farmer, as published in the different countries, are given in the following pages.

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

COUNTRIES	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
	Index numbers of June 1937			
	in comparison with May 1937		in comparison with June 1936	
Germany (wholesale prices)	+ 0.5	+ 0.2	— 1.0	+ 2.0
Germany (products sold by farmers)	+ 0.1	—	— 1.9	—
England and Wales	— 1.5	— 1.4	+ 10.7	+ 23.6
Argentina	— 3.1	—	+ 24.1	—
Canada	— 4.7	— 0.6	+ 29.8	+ 17.0
Finland	— 1.2	— 1.0	+ 10.2	+ 14.4
Hungary	— 1.3	— 1.1	+ 11.4	+ 10.6
New Zealand	— 0.4	—	+ 17.7	—
Netherlands	0.0	— 0.5	+ 17.0	+ 23.9
Poland	+ 0.3	+ 0.7	+ 20.7	+ 11.9
Yugoslavia:				
plant products	— 0.7	— 0.7	+ 7.4	+ 10.2
livestock products	— 1.1		+ 10.3	
	Index numbers of May 1937			
	in comparison with April 1937		in comparison with May 1936	
Belgium	+ 0.5	—	+ 6.8	—
Irish Free State	+ 2.8	—	+ 18.3	—
United States: Bureau of Agric. Economics	— 1.5	—	+ 24.3	—
United States: Bureau of Labor	— 2.6	— 0.7	+ 25.8	+ 11.2
Lithuania	+ 2.1	0.0	+ 33.3	+ 18.2
Sweden	0.0	—	+ 14.3	—

Quarterly general index-numbers of prices of agricultural products.

(Base: first quarter of 1929 = 100).

COUNTRIES	1935			1936				1937	
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Germany (wholesale prices)	75.7	77.9	78.6	78.7	79.1	79.5	77.8	77.8	78.3
Germany (products sold by farmers)	74.6	76.1	75.8	76.3	79.3	76.8	74.8	74.8	77.6
England and Wales	83.3	85.4	83.3	85.4	85.4	87.5	89.6	92.4	95.8
Argentina	66.1	69.0	74.4	78.2	78.8	86.8	87.5	95.0	100.5
Belgium 1)	91.5	100.5	110.1	108.0	102.1	104.2	113.2	111.6	4) 108.5
Canada	74.2	64.5	67.3	67.7	66.6	73.5	80.8	90.2	90.1
Irish Free State	57.1	57.0	60.7	58.3	63.2	65.0	69.3	67.4	4) 74.6
United States: Bur. of Agr. Economics	73.8	71.9	74.7	73.3	71.9	82.9	83.6	88.4	4) 88.4
United States: Bur. of Labor	75.2	74.1	73.5	73.5	72.2	78.2	80.9	87.0	4) 85.7
Finland	69.8	72.0	72.6	75.1	72.0	73.5	75.7	82.2	81.3
Hungary	56.1	59.6	64.8	61.0	53.6	52.9	56.6	59.6	58.8
Lithuania	36.2	33.2	35.6	36.2	36.9	38.9	43.0	46.6	4) 47.8
New Zealand 2)	102.3	108.4	120.4	120.6	120.8	129.4	131.9	137.2	143.9
Netherlands	53.6	55.7	54.6	53.6	55.7	57.9	57.9	62.1	66.4
Poland 3)	45.1	46.1	49.7	45.4	48.2	47.7	51.5	54.1	57.8
Sweden 2)	106.3	106.9	108.5	106.6	106.0	117.7	118.3	121.4	4) 121.1
Yugoslavia plant products	44.2	50.4	60.7	60.3	51.4	44.6	48.5	49.6	50.2
Yugoslavia livestock products	53.4	50.6	54.5	51.9	53.1	58.9	60.9	59.4	59.4

1) Base: 1st Quarter of 1932 = 100. — 2) Base: 1st quarter of 1931 = 100. — 3) First month of each quarter compared with January 1929. — 4) Average of April and May only.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	June 1937	May 1937	April 1937	March 1937	Feb 1937	Jan 1937	June 1936	June 1935	Year	
									1936	1935
Germany 2) (Statistisches Reichsamt) 1913 = 100										
Foodstuffs of plant origin	115.7	115.5	114.5	114.6	113.6	113.0	116.9	115.0	114.1	113.4
Livestock	87.4	86.2	85.7	84.4	84.9	85.0	88.9	83.2	89.4	84.2
Livestock products	107.8	107.8	109.4	110.4	110.3	110.3	107.3	103.4	109.4	107.1
Feeding stuffs	108.3	107.7	107.3	106.7	105.7	105.3	111.2	104.6	107.5	104.6
Total agricultural products	104.6	104.1	103.9	103.9	103.4	103.2	105.7	101.5	104.9	102.2
Fertilizers	55.8	57.1	60.6	61.9	62.4	61.4	68.4	65.7	66.8	66.8
Agricultural dead stock	112.7	112.7	112.8	112.7	112.7	112.7	111.3	111.1	111.6	111.1
Finished manufactures ("Konsumgüter")	132.9	132.5	131.8	131.4	130.7	130.7	126.7	123.8	127.3	124.0
Wholesale products in general	106.1	105.9	105.8	106.1	105.5	105.3	104.0	101.2	104.1	101.8
Germany 3) (Statistisches Reichsamt) Average of corresponding months 1909-1910 1913-14 = 100									1936-37 6)	1935-36 6)
Cereals	102	101	103	107	107	107	106	101	104	104
Edible potatoes	112	122	116	114	106	108	110	101	115	119
Plant products	103	107	107	108	107	108	106	101	107	107
Meat animals	97	96	95	93	94	92	100	93	94	96
Dairy and poultry products	117	113	109	102	101	101	117	116	105	106
Livestock products	104	102	99	96	96	95	106	101	98	99
Total agricultural products	104	102	101	99	99	99	106	101	100	101
England and Wales (Ministry of Agriculture and Fisheries) Average of corresponding months of 1911-13 = 100									1936	1935
Agricultural products 4)	134	136	143	134	133	133	121	117	126	123
Feeding stuffs	119	119	124	118	115	119	87	86	93	87
Fertilizers	91	91	91	91	91	91	89	88	89	88
Wholesale products in general 5)	122.7	124.4	122.7	125.8	119.6	116.7	99.3	98.5	104.4	99.5
Argentina (Banco Central de la República Argentina) 1926 = 100										
Cereals and linseed	97.7	102.4	102.6	99.7	91.9	88.6	79.9	63.5	82.6	67.2
Meat	92.6	86.3	83.4	78.1	81.1	81.6	92.8	80.0	91.0	84.0
Hides and skins	118.1	123.9	139.4	137.0	120.4	123.0	78.1	77.3	91.0	80.5
Wool	144.9	153.9	160.4	156.8	152.2	156.2	98.9	69.2	107.6	74.6
Dairy products	91.7	85.8	87.3	89.3	91.3	93.4	86.6	82.6	85.5	88.8
Forest products	98.7	97.8	97.8	97.3	98.0	97.8	97.7	90.4	96.3	92.2
Total agricultural products	102.4	105.7	107.1	104.1	97.7	96.2	82.5	68.3	86.6	72.1

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1) For an explanation of the method of calculating the index numbers, reference should be made to the Institute's publication *Index numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79, July 1932, page 502, March 1934, page 231, December 1934, page 996) — 2) Index-numbers of wholesale prices — 3) Index numbers of products sold by farmers — 4) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934, the Cattle Emergency Act payments — 5) Calculated by the *Statist*, reduced to base year 1913 = 100. — 6) Agricultural year 1 July to 30 June

Description	June 1937	May 1937	April 1937	Mar. 1937	Feb. 1937	Jan. 1937	June 1936	June 1935	Year 1936	Year 1935
Belgium (Belgische Boerenbond Boerenbond belge) Average of corresponding months 1909/1914 = 100										
Field products	...	576	594	562	562	573	484	492	508	438
Livestock products	...	559	547	586	589	583	548	504	576	532
Total agricultural products	...	565	562	578	580	580	528	500	555	502
Rent	...	645	645	645	640	604	600	545	605	551
Agricultural wages	...	850	845	840	835	825	770	730	778	737
Fertilizers	...	433	431	434	436	429	418	389	427	394
Feedingstuffs	...	573	601	594	595	608	498	456	513	444
Total production expenses (included those not specified)	...	727	731	728	726	724	681	623	689	630
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	85.1	89.0	94.4	93.4	89.6	88.3	60.0	55.1	67.0	57.1
Livestock and livestock products	81.4	85.7	86.3	84.2	82.6	82.1	70.7	72.0	75.3	73.9
Total Canadian farm products	83.7	87.8	91.4	90.0	87.0	86.0	64.5	61.4	70.1	63.4
Fertilizers	74.5	74.5	74.5	74.2	74.2	74.2	74.3	75.8	74.4	75.8
Consumers' goods (other than foodstuffs, beverages and tobacco)	78.5	78.2	77.7	77.5	77.8	76.6	75.4	75.5	75.5	75.7
Wholesale products in general.	84.6	85.1	86.1	85.5	82.9	81.3	72.3	71.4	74.6	72.1
Irish Free State (Department of Industry and Commerce) Average 1911/1913 = 100.										
Agricultural products in general	...	106.5	103.6	98.6	93.8	92.1	90.8	82.2	90.6	83.0
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	...	149	154	145	146	143	87	102	108	103
Cotton and cottonseed	...	112	117	116	108	107	96	103	100	101
Fruits	...	152	142	133	127	105	115	100	100	91
Truck crops (market garden crops)	...	139	127	131	143	115	99	96	113	127
Meat animals	...	133	130	129	126	128	120	119	121	117
Dairy products	...	116	120	125	126	128	106	99	119	108
Chickens and eggs	...	96	104	102	101	110	103	108	115	117
Miscellaneous	...	133	138	140	147	182	120	86	122	97
Total agricultural products	...	128	130	128	127	131	107	104	114	108
Commodities purchased 1)	...	134	134	132	132	128	120	127	124	125
Agricultural wages 1)	...	—	112	—	—	103	2) 101	2) 94	106	95
United States (Bureau of Labor) 1926 = 100.										
Cereals	...	113.9	119.2	113.2	111.5	113.0	73.0	76.9	88.1	82.4
Livestock and poultry	...	95.9	93.6	93.7	89.9	91.4	83.2	84.8	84.8	84.9
Other farm products	...	79.0	83.4	88.5	86.3	84.8	75.8	74.3	76.0	73.4
Total agricultural products	...	89.8	92.2	94.1	91.4	91.3	78.1	78.3	80.9	78.7
Agricultural implements	...	93.8	92.1	93.1	93.1	93.0	94.2	93.6	94.1	93.7
Fertilizer materials	...	70.6	70.7	70.3	70.7	70.6	64.0	65.7	65.9	66.3
Mixed fertilizers	...	72.2	72.0	71.7	71.7	71.4	66.0	74.5	68.3	70.6
Cattle feed	...	139.9	146.8	135.0	129.4	135.4	80.7	92.2	94.0	88.4
Non-agricultural commodities	...	86.7	86.9	86.3	85.0	84.6	79.4	80.0	80.7	80.2
Wholesale products in general	...	87.4	88.0	87.8	86.3	85.9	79.2	79.8	80.8	80.0

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1) 1910-1914 = 100. — 2) April.

DESCRIPTION	June 1937	May 1937	April 1937	Mar. 1937	Feb. 1937	Jan. 1937	June 1936	June 1935	Year	
									1936	1935
Finland										
(Central Bureau of Statistics) 1926 = 100.										
Cereals	112	116	117	116	116	110	89	79	91	80
Potatoes	59	65	71	76	71	66	83	88	74	75
Fodder	70	74	75	75	68	66	65	67	64	62
Meat	86	83	79	87	86	82	82	72	80	75
Dairy products	81	83	85	87	86	83	80	77	82	83
Total agricultural products	86	87	88	91	88	84	78	75	79	76
Wholesale products in general.	103	104	103	103	101	98	90	90	92	90
Hungary										
(Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	78	79	79	80	78	83	70	75	—	—
Wholesale products in general	94	95	94	95	93	96	85	87	—	—
Lithuania										
(Lietuvos Bankas) 1926-29 = 100										
Cereals	...	48	48	47	47	43	36	40	37	39
Cattle, fowls	...	51	50	47	46	45	38	30	40	30
Leather, hides, wool	...	62	62	61	60	60	47	37	50	38
Meat, dairy products and eggs	...	42	41	44	44	44	35	33	38	35
Total agricultural products	...	48	47	47	47	45	37	35	39	35
Wholesale products in general	...	52	52	51	51	49	44	45	45	45
New Zealand										
(Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	112.6	108.3	97.6	90.4	95.3	101.8	106.9	79.5	105.6	91.3
Meat	163,4	164.5	164.5	162.7	168.2	168.7	159.8	150.2	161.5	157.6
Wool	180,9	190.8	184.6	175.2	181.1	167.2	102.2	84.8	111.5	82.2
Other pastoral products	153.1	151.8	145.1	147.0	139.7	141.8	121.6	98.5	123.6	96.7
All pastoral and dairy products	144.1	144.5	138.1	132.6	137.1	137.4	121.9	100.6	122.9	107.2
Field products	130.6	138.4	134.3	140.4	120.4	119.3	127.4	124.7	124.2	126.0
Total agricultural products	143,7	144.3	138.0	132.8	136.6	136.9	122.1	101.3	123.9	108.8
Norway										
(Kgl. Selskap for Norges Vel) Average 1909-14 = 100.									1936-37 1)	1935-36 1)
Cereals	172	172	171	169	168	166	148	145	154	144
Potatoes	188	134	142	153	158	145	132	257	132	165
Pork	108	103	102	107	114	117	101	94	110	109
Other meat	185	165	154	155	148	145	146	138	148	146
Dairy products	156	153	153	151	144	142	137	138	139	139
Eggs	98	96	101	122	105	107	88	75	113	102
Concentrated feeding stuffs	153	151	148	143	146	133	126	111	130	123
Maize	146	139	136	132	134	133	125	95	130	113
Fertilizers	90	90	90	89	89	87	88	78	87	82

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1) Agricultural year: 1.st April-31.st March.

Specification	June 1937	May 1937	April 1937	March 1937	Feb. 1937	Jan. 1937	June 1936	June 1935	Year	
									1936-37 2)	1935-36 2)
Netherlands										
(Bureau of Agriculture) Average 1924-25 to 1928 29 = 100.										
Plant products	61	62	61	60	60	59	47	58	58	50
Livestock products	63	63	64	62	57	55	55	48	57	51
Total agricultural products	62	62	63	61	57	56	53	50	57	51
Agricultural wages	68	68	68	68	68	68	68	69	68	69
Wholesale products in general 1)	76.3	76.7	77.1	76.0	74.0	73.0	61.6	60.9	3) 63.8	3) 61.5
Poland										
(Central Bureau of Statistics) 1928 = 100.									1936	1935
Raw plant products	61.6	55.8	54.2	54.7	53.2	46.8	40.0	37.2	38.1	33.9
Meat animals	42.3	41.9	43.7	43.3	42.7	40.8	40.6	32.4	38.7	35.5
Dairy products and eggs	43.8	47.0	47.6	49.3	46.4	45.1	35.8	37.5	40.4	41.2
Products sold directly by farmers	51.9	49.6	49.5	50.0	48.5	44.5	39.4	35.6	38.7	35.8
Flour and groats	60.2	57.5	56.7	59.4	60.1	53.4	39.7	36.0	41.2	36.7
Meat and lard-fat	46.0	47.6	47.8	47.9	45.6	45.6	46.6	37.1	44.3	40
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.7	79.3	71.5	7
Products of agricultural industries	58.9	58.6	58.4	59.3	58.8	56.6	52.6	50.6	52.2	5
Total agricultural products	55.4	54.0	53.9	54.6	53.5	50.5	45.9	43.0	45.4	43.
Commodities purchased	66.4	66.4	66.5	66.5	66.1	65.8	64.0	66.8	64.6	66.
Wholesale products in general	60.3	59.9	60.1	60.6	59.8	58.2	53.9	52.6	54.0	53.
Sweden										
(Kungl Lantbruksstyrelse) Average 1909-1913 = 100.										
Plant products	...	127	128	126	126	121	105	116	108	108
Dairy products	...	132	132	136	133	129	114	111	133	122
Meat animals	...	123	118	120	120	128	126	116	126	120
Livestock products	...	129	128	132	130	129	116	112	131	121
Total agricultural products	...	128	128	130	129	126	112	113	123	117
Feedingstuffs	...	137	139	139	143	144	126	123	133	125
Fertilizers	...	94	94	94	94	94	95	95	95	95
Building materials	...	194	193	191	185	177	157	162	161	162
Machinery and implements	...	196	196	196	196	178	179	179	177	177
Sundries	...	128	127	123	122	120	110	111	112	109
Total commodities purchased	...	144	144	143	143	140	129	129	133	129
Agricultural wages	...	193	193	193	193	193	174	170	174	170
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	69.3	69.8	65.8	67.8	68.1	66.5	64.5	60.1	69.7	68.2
Livestock products	62.0	62.7	65.7	64.3	62.7	63.5	56.2	58.5	60.0	56.6
Industrial products	75.9	76.6	76.6	75.4	74.0	74.0	67.6	65.7	69.7	66.7
Wholesale products in general	72.1	72.6	72.3	72.1	70.9	70.4	65.4	63.9	68.4	65.5

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1) New index-numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100.
2) Agricultural year: 1 July to 30 June. — 3) Calendar year.

The regulation of cereal prices in Germany.

The basis of the cereal market for 1937-38 is determined by an order, dated 26 June 1937, of the Reich Minister of Food and Agriculture

The system of fixed prices remains unchanged The prices for the year 1937 38 come into force on 1 July for rye and fodder barley and on 1 August for wheat and fodder oats The base prices for wheat fodder barley and fodder oats are those fixed on the basis of the 1936 crop That for rye is 2 00 RM higher than that for 1936 During the agricultural year 1937 38 these prices will be varied in the manner indicated in the following table

Monthly fixed prices (Berlin price region) in RM per quintal

Commodity	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July
Wheat	—	3) 20 10	20 10	20 10	20 30	20 60	20 80	20 80	20 80	20 70	20 70	20 70	20 70
Rye	1) 18 40	18 40	18 40	18 60	18 80	19 00	19 00	19 00	19 00	18 90	18 70	18 40	—
Fodder barley	2) 16 50	16 50	16 70	16 90	17 00	17 20	17 30	17 40	17 40	17 40	17 10	16 70	—
Fodder oats	—	15 80	16 10	16 30	16 50	16 70	17 00	17 20	17 40	17 40	17 40	17 00	16 60

1) As from 10 7 37 from 1 7 to 9 7 37 17 70 — 2) As from 10 7 37 from 1 7 to 9 7 37 16 00 3) As from 1 8 37 from 1 8 to 9 8 37 19 40

LATEST NEWS

PRODUCTION

Denmark The condition of crops on 15 July was as follows

	Jutland 1937	Jutland 1936	Islands 1937	Islands 1936
Wheat	91	91	96	96
Rye	94	91	97	97
Barley	100	80	97	91
Oats	100	81	100	93
Meslin	101	83	99	92
Potatoes	97	95	96	92
Sugar beet	95	98	97	96
Mangels	92	97	93	95
Temporary meadows	111	112	107	108
Permanent meadows	106	104	99	99
Pastures	98	104	88	97

Finland The first estimates of the 1937 crops are as follows Area in acres wheat 242,000, rye 598 000, barley 324 000 oats 1 122 000 — Production in centals (and bushels) wheat 3,818 000 (6 364,000), rye 8,741 000 (15 610 000) barley 4 409 000 (9 186,000) oats 15,318,000 (47,868 000)

Hungary (telegram of 26 July) According to the most recent estimate the production of the four principal cereals for 1937 is as follows Wheat, 41,941,000 centals (69 900,000 bushels), Rye, 14,189,000 centals (25,338,000 bushels), Barley, 10,571,000 centals (22 024,000 bushels), Oats, 5 115,000 centals (15 983 000 bushels)

TRADE

Statistics received too late for inclusion in the tables and statistics for June already available.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1937	1936	1937	1936
ANGOLA	May	May	May	May
Coffee . . . . . 1000 lb	679	1,565	—	—
GERMANY	June	June	June	June
Wheat . . . . . 1000 centals	...	...	6,518	186
Wheat flour . . . » »	...	...	52	0
Rye . . . . . » »	...	...	1,081	60
Barley . . . . . » »	...	...	458	281
Oats . . . . . . » »	...	..	256	12
Butter . . . . . 1000 lb.	...	...	11,817	9,520
Cheese . . . . » »	...	. .	5,333	4,608
NORWAY				
Wheat . . . . . 1000 centals	0	0	367	295
Wheat flour . . . » »	0	0	49	104
Rye . . . . . . » »	0	0	110	493
Barley . . . . . . » »	0	0	50	0
Oats . . . . . . » »	0	0	85	0
Maize . . . . . . » »	0	0	320	243
Rice . . . . . . » »	0	0	11	13
Linseed . . . . » »	0	0	30	49
Cotton . . . . . » »	0	0	4	4
Wool . . . . . . 1000 lb	161	99	227	220
Butter . . . . . » »	0	11	0	0
Cheese . . . » »	342	245	22	15
Cacao . . . . . . » »	—	—	489	560
Tea . . . . » »	—	—	26	24
Coffee . . » »	—	—	3,042	1,918
NETHERLANDS (*see over*)				
Wheat . . . . 1000 centals	0	0	735	1,041
Wheat flour . . . » »	38	0	137	142
Rye . . . » »	32	0	100	226
Barley . . . . . » »	0	1	274	683
Oats . . . . . . » »	13	4	124	35
Maize . . . . . . » »	0	2	1,344	1,340
Rice . . . . » »	280	190	653	277
Linseed . . . » »	2	2	338	378
Cotton . . . . . » »	2	0	92	53
NETHERLANDS (*concluded*)	June	June	June	June
Wool a) . . . . 1000 lb.	282	238	249	443
Wool b) . . . » »	40	31	461	260
Butter . . . . . » »	22,630	12,868	0	2
Cheese . . . . » »	11,473	10,384	42	57
Cacao . . . . . » »	472	432	7,249	11,517
Tea . . . . » »	11	7	2,231	2,674
Coffee . . . . . » »	315	55	4,727	2,520
UNITED KINGDOM				
Wheat . . . . . 1000 centals	563	34	9,064	11,571
Wheat flour . » »	141	149	876	797
Barley . . » »	0	0	944	1,633
Oats . . . . » »	7	2	194	442
Maize . . . . . . » »	232	88	5,355	4,878
Rice . . . . . . » »	15	8	274	249
Linseed . . . . . » »	0	1	539	516
Cotton . . . . . » »	63	59	1,120	1,326
Wool . . 1000 lb	29,227	25,988	81,137	67,980
Butter . . . . » »	518	514	108,247	98,190
Cheese . . . . » »	128	185	21,713	28,016
Cacao . . . . . . » »	527	734	4,943	10,002
Tea . . . . » »	5,073	5,326	29,216	29,507
Coffee . . . » »	564	1,036	1,100	1,243
SWITZERLAND				
Wheat . . . . . 1000 centals	0	0	625	1,567
Rye . . . . . . » »	0	0	12	43
Barley . . . » »	0	0	224	172
Oats . . . . . » »	0	0	315	358
Maize . . . . » »	0	0	156	123
Rice . . . . . . » »	0	0	21	22
Cotton . . . » »	0	0	42	33
Wool . . . . . . 1000 lb.	22	26	1,775	1,958
Butter . . . . . » »	0	0	20	24
Cheese . . . . . » »	3,243	3,364	220	218
Cacao . . . . . . » »	7	22	1,554	569
Tea . . . . . . » »	2	2	119	86
Coffee . . . . . . » »	0	0	1,786	2,053
BRAZIL				
Coffee . . . . 1000 lb	120,318	127,309	—	—

a) Wool greasy — *b)* Wool scoured

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

27-VII-1937.

Saturday, Spanish; Tuesday, Italian; Wednesday, French.

They will be broadcast from Rome 1 (420.8 m.) and Rome 2 RO (25.4 m.).

The hour of broadcasts is in Central European Time, which is one hour ahead of Gr wich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = *excellent,* 2 = *good,* 3 = *average,* 4 = *bad,* 5 = *very bad; France:* 100 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *average,* 30 = *bad; Estonia, Lithuania, Poland and Sweden;* 5 = *excellent,* 4 = *good,* 3 = *average,* 2 = *bad,* 1 = *very bad; Netherlands:* 90 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *below average; Portugal:* 100 = *excellent,* 80 = *good,* 60 = *average,* 40 = *bad,* 20 = *very bad; Switzerland:* 100 = *excellent,* 90 = *very good,* 75 = *good,* 60 = *fairly good,* 50 = *average,* 40 = *rather bad,* 30 = *bad,* 10 = *very bad; U. S. S. R.:* 5 = *good,* 4 = *above the average,* 3 = *average,* 2 = *below average,* 1 = *bad; Canada:* 100 = *crop condition promising a yield equivalent to the average yield of a long series of years; United States:* 100 = *crop condition which promises a normal yield, Egypt* 100 = *from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed:* 100 = *crop condition which promises a yield equal to the average of the last ten years.*

See latest information at the end of the Crop Report

CEREALS

The world wheat trade in 1936-37.

As we anticipated for some months, the world wheat trade showed an appreciable contraction after the heavy exports of the early months of the year, particularly during the period January to March. From April onwards, world wheat exports declined continuously. The official figures now available for June show that the decline persisted, and, to judge from the first indications, it was still more marked in July, thus confirming the impression that the importing countries had provided in advance at the beginning of the year for part of their requirements for the final months. The volume of exports in June was about the same as that of the same month last year and the smallest recorded for this year.

Despite this weakening in the world wheat demand, the total volume of exports of the first eleven months of the year almost reached the level of 580 million bushels we anticipated in the spring for the whole year. As we have pointed out in recent issues of the Crop Report, total exports in the year 1936-37, which closed on 31 July, will be about 30 million bushels larger than our last estimate.

*World net exports of wheat (including flour in terms of wheat) *).*

(Million bushels)

MONTHS	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August.	47	39	49	45	41	67	77	71
September	52	50	43	51	48	78	74	57
October	52	51	50	46	61	74	84	60
November	57	51	43	42	54	67	77	51
December	53	34	39	51	60	64	59	50
January	63	34	43	48	62	62	55	48
February	61	46	41	45	63	73	70	45
March	62	45	49	50	64	74	67	50
April	47	30	42	36	40	70	62	43
May	43	45	47	44	52	67	81	50
June	41	41	33	45	42	59	67	52
July	...	38	36	46	44	46	52	53
Total August-June	*578*	*466*	*479*	*503*	*587*	*755*	*773*	*577*
Total Year	1) *580*	*504*	*515*	*549*	*631*	*801*	*825*	*630*

*) Aggregate net exports of the normal exporting countries (United States net imports not deducted).
1) Forecast April 1937, showing a slight underestimate

The exportable balance remaining in the various exporting countries on 1 July was very low, being estimated at 105 million bushels, or about half of what it was on 1 July 1936. This confirms that the year 1936-37 closed on 31 July with the smallest exportable stocks recorded for many years.

Exportable supplies of wheat on 1 July 1937.

(Million bushels)

COUNTRIES	Year 1936-37			Year 1935-36		
	Total exportable supplies	Net exports from 1 August to 30 June	Remainder on 1 July	Total exportable supplies	Net exports from 1 August to 30 June	Remainder on 1 July
Canada	230	198	32	347	220	127
Argentina	185	157	28	104	65	39
Australia	130	91	39	133	96	37
U. S S R.	4	4	0	29	29	0
India	20	16	4	2	2	0
Danubian countries	92	91	1	33	30	3
North Africa, Turkey and others	22	21	1	25	24	1
Total	*683*	*578*	*105*	*673*	*466*	*207*

All the important exporting countries hold very small exportable stocks. On 1 July Australia alone had more or less normal supplies. The exportable remainder of the Danube States appears slightly underestimated, the total surplus attributed to these countries having proved to be slightly smaller than the actual supplies available.

Net imports in Europe during the eleven months August to June were 397 million bushels, or 25 per cent., larger than those of the same months of last year. They accord fairly closely with our estimates and they may now be put approximately at 440-445 million bushels for the whole year, a total which differs by only a few millions from our forecast of last April. The import requirements of the United Kingdom and Irish Free State appear to be below expectations while those of the continental countries are somewhat larger. The increase in the European demand since 1935-36 is due mainly to three countries: Italy, which imported 54 million bushels net in the first eleven months against 5 millions in 1935-36, Germany (23 million against nil) and Greece (20 millions against 13 millions). Imports into the British Isles were, on the other hand, lighter (193 million bushels against 201 millions in 1935-36).

*Net imports of wheat into Europe (including flour in terms of wheat) *).*

(Million bushels)

MONTHS	Year 1936-37			Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August	16	9	25	16	11	27	18	14	32
September	16	13	29	15	13	28	20	16	36
October	19	13	32	21	14	35	18	13	31
November	20	13	33	21	13	34	17	12	29
December	20	16	36	20	10	30	20	12	32
January	12	14	26	15	9	24	12	10	22
February	21	16	37	14	7	21	16	10	26
March	21	22	43	20	8	28	20	11	31
April	15	24	39	18	9	27	17	11	28
May	16	32	48	20	13	33	22	10	32
June	17	32	49	21	12	33	18	10	22
July .	.	...	...	19	12	31	19	12	31
Total August June	*193*	4) *204*	4) *397*	*201*	*119*	*320*	*198*	*129*	*327*
Total Year .	1) *225*	1) *210*	1) *435*	*220*	2) *131*	2) *351*	*217*	3) *141*	3) *358*

*) Aggregate net imports of normal importing countries, after deduction of net exports, if any

1) Forecast April 1937. — 2) After deduction of net exports of 7 million bushels from Latvia, Portugal and Sweden — 3) After deduction of net exports of 21 million bushels from France, Estonia, Latvia and Sweden. — 4) After deduction of net exports of 9 million bushels from Czechoslovakia

The 1937 wheat crop and the prospects for the 1937-38 commercial season.

In Europe the summer was on the whole favourable for the ripening of wheat, for the harvest, for threshing and saving the crop, though in places seasonal storms did damage of small importance. But, in spite of the favourable summer season, the general outlook on the harvest results of European countries is a little less satisfactory than a month ago, for in the areas most affected by the bad winter and spring weather, crops had not sufficiently recovered to give the yields anticipated so that the first threshings are disappointing, particularly as regards quantity

The preliminary estimates of crops that have arrived at the Institute are not complete representing only about two thirds of the total European production, excluding the U. S S. R Of the 15 countries who have sent estimates up till now, two only, Hungary and the Netherlands, report a lower production than last year, while all the others show increases, in some cases considerable The crops of Italy, Romania, Bulgaria, Greece, Switzerland and the Baltic states are particularly satisfactory.

The total production of these 15 European countries is estimated to be 94 million bushels (10 per cent) higher than in 1936 and 33 million bushels (3.5 per cent) above the average of 1931 to 1935 It must however be remembered that these returns are not only incomplete but are also for the most part preliminary estimates, in some cases based on the appearance of the crop at a time well before the harvest This is the case with France, whose estimate of 263 million bushels given in the table is based on the crop condition on 15 June and now seems quite over-valued compared with the latest commercial estimates, which report a production of barely 220-230 million bushels Moreover, it would be dangerous to extend to the rest of Europe the good results that these provisional figures show, particularly as, among the countries which have not yet published a preliminary estimate, are those very countries with poor crop prospects, such as Germany, Poland and Czechoslovakia

Last June we had forecast, on the basis of the crop situation at that time, that the European wheat crop in 1937 would be 1,510 million bushels, of which 1,095 were attributed to the importing countries and 415 to the exporting In July, judging that crop prospects had on the whole rather improved, we slightly increased these estimates, raising the importers' quota to 1,125 million bushels and the exporters' to 425, making 1,550 million for Europe as a whole. The information reaching the Institute in August necessitates a further readjustment of the estimates published in July. Briefly these may be summarised as follows· a slight improvement in the crop prospects in northern countries including the British Isles and the Scandinavian and Baltic countries; a rather appreciable falling off in prospects in central regions including France, Germany, Poland, Czechoslovakia, etc.; confirmation of a plentiful crop, somewhat above expectations in southern regions and in the Danube countries. On the whole, bearing in mind the provisional and approximate character of the various estimates, we believe it is necessary to decrease the last estimate of 1,550 million bushels for the whole of Europe by 30 millions, thus bringing the figure down to 1,520 millions which is about equal to the figure forecast in June (1,530 millions). According to this figure, the total production of Europe in 1937 is 40 million bushels larger than the 1936 crop but 40 million bushels smaller than the average production of the five years 1931 to 1935.

While results in 1937 do not appear to be much better than those of last year in the continent as a whole, the increase being barely 3 per cent., a considerable difference will be seen if the forecasts for the importing and exporting countries are examined separately. Our June forecast for the importing group indicated a total of 1,095 million bushels which was raised to 1,125 millions in July on receipt of information that in many areas damage was less than it was expected to be. Recently, however, it was reported that owing to the damage, yields in several important countries of Central Europe would not come up to the July expectations. Consequently, notwithstanding the better crop outlook in northern countries, we have once again brought down the estimate for the importing group from 1,125 to 1,085 million bushels. The increase in the production of these countries over 1936 is thus reduced from 110 to 70 millions. Compared with the average of the years 1931 to 1935, the 1937 crop indicates, however a decrease of 90 million bushels or 7 5 per cent. but, as this average contains three record years, the results obtained in 1937 may be considered satisfactory. The increase in the wheat crop this year over last year, the systems of economic autarky prevailing in several important consuming countries and the present difficulties surrounding international payments would lead one to expect a sharp contraction in the European wheat demand in 1937-38 compared with that of 1936-37 when the net imports of the importing countries of Europe amounted to over 440 million bushels. However, in view of the reduced dimensions of old wheat stocks in most of these countries and of the poor rye crop in several important producing countries, we think it probable that the European wheat demand in 1937-38 will show a smaller decrease than is generally expected.

European wheat production.

(Million bushels)

Years	Importing countries	Four Danube countries Poland and Lithuania	Total Europe
1937 (forecast)	*1,085*	*435*	*1,520*
1936	1,014	467	1,481
1935	1,190	386	1,576
1934	1 213	337	1,550
1933	1,290	455	1,745
1932	1,209	279	1,488
1931	974	463	1,437
1926-30 (average)	952	389	1,341

Crops in the four Danube countries, which, with Poland and Lithuania, form the exporting group of Europe, are now reported to be more plentiful

Cereal production.

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand bushels				
WHEAT								
Bulgaria	38,540	35,583	30,592	64,233	59,304	50,985	108 3	126 0
Estonia u)	573	463	569	955	772	949	123 8	100.7
Finland	3 618	3,265	1,509	6,030	5,442	2,515	110 8	239 7
France	1) 157,631	153 562	190,015	1) 262,713	255,932	316,685	102 6	83 0
Greece	22,346	12,803	13,145	37,242	21,338	21,908	174 5	170 0
Hungary	42,067	52 674	45 891	70,110	87,788	76 483	79 9	91 7
Italy	176,585	134,566	160,287	294 303	224,272	267,140	131 2	110 2
Latvia u)	1,865	1,699	2 439	3,108	2,831	4,065	109 8	76 5
Luxemburg	674	642	518	1,123	1,070	863	104 9	130 2
Netherlands	7,606	9,345	8,353	12,676	15,575	13,922	81,4	91 1
Portugal	8,724	5,190	11,864	14,540	8,651	19,773	168 1	73 5
Romania	81,591	77,231	57,949	135 983	128 716	96,579	105 6	140 8
United Kingdom								
Engl and Wales	31,024	30,867	31,409	51,707	51,445	52,349	100 5	98 8
Scotland	2,500	2 128	1 935	4 181	3,547	3,226	117 9	129 6
Switzerland.	3,697	2,682	2,978	6,162	4,470	4,963	137 9	124 2
Totals	*579,041*	*522,700*	*559 453*	*965,066*	*871,153*	*932,405*	*110 8*	*103 5*
Canada (w)	10,349	7,487	7,667	17,248	12,478	12,779	138 2	135 0
Canada (s)	2) 88,000	130,044	200,458	2) 146,000	216,740	334,097	67 4	43 7
United States (w)	412,887	311,408	311,058	688 145	519,013	518,430	132 6	132 7
United States (s)	121,364	64 469	96,724	202 274	107 448	161,206	188 3	125 5
Mexico	7,769	8,164	7,160	12,949	13,606	11,933	95 2	108 5
Totals	*640,369*	*521,572*	*623,067*	*1,066,616*	*869,285*	*1,038,445*	*122 8*	*102 8*
Chosen	6,625	4,847	5,471	11 041	8,078	9,118	136,7	121 1
India 3)	219,699	211,008	210,269	366,165	351,680	350,448	104 1	104 5
Totals	*226,324*	*215 855*	*215,740*	*377,206*	*359,758*	*359 566*	*104 9*	*104 9*
Algeria	20 618	17,864	19,674	34 362	29,773	32,789	115 4	104 8
Egypt	27,227	27 421	26,293	45,378	45,701	43 822	99 3	103 6
Libya	592	251	149	987	418	249	235 9	396 1
French Morocco	11 000	7,341	4) 17,554	18,000	12,234	4) 29,255	150 2	—
Tunisia	11,023	4 850	8,554	18,372	8 083	14,256	227 3	128 9
Totals	*70,460*	*57,727*	*72,224*	*117 099*	*96,209*	*120,371*	*122 1*	*97 6*
GRAND TOTALS	**1,516,194**	**1,317,854**	**1,470,484**	**2,525,987**	**2,196,405**	**2,450,787**	**115.1**	**103.1**
RYE								
Bulgaria	5,475	4,469	4,880	9,778	7,980	8,714	122.5	112 2
Estonia	4,409	3 384	4,204	7,874	6 044	7,507	130 3	104 9
Finland	8,369	7,143	7,768	14,944	12,755	13,871	117 2	107 7
Greece	1,672	1 075	1,270	2,986	1,919	2,267	155 6	131 7
Hungary	14,195	15,744	15,978	25,348	28,115	28,532	90.2	88 8
Italy	3,221	2,915	3,517	5,752	5,206	6,281	110 5	91 6
Latvia	8,773	6,241	6,864	15,666	11,145	12,257	140 6	127.8
Luxemburg	273	251	270	488	449	481	108 8	101 4
Netherlands	10,185	10,673	9,168	18,188	19,059	16,371	95 4	111 1
Portugal	2,600	1,941	2,573	4,642	3,466	4,595	134 0	101 0
Romania	9,740	9,992	7,063	17,393	17,842	12,613	97 5	137 9
Switzerland	679	603	773	1,213	1,077	1,381	112 5	87 8
Totals	*69,591*	*64,431*	*64,328*	*124,272*	*115,057*	*114,870*	*108 0*	*108 2*
Canada (w)	2,395	1,704	2,846	4,276	3,042	5,082	140 6	84 1
Canada (s)	2) 610	694	770	2) 1,100	1,239	1,375	88 1	79 4
United States	29,047	14,310	19,027	51,869	25,554	33,977	203.0	152 7
Totals	*32,052*	*16,708*	*22,643*	*57,245*	*29,835*	*40,434*	*191 9*	*141 6*
GRAND TOTALS	**101,643**	**81,139**	**86,971**	**181,517**	**144,892**	**155,304**	**125.3**	**116.9**

COUNTRY	British units			American units			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand bushels				
BARLEY								
Bulgaria	7,951	6,674	6,444	16 564	13,905	13,426	119 1	123.4
Finland	3,955	4,165	3 958	8,240	8,676	8,245	95.0	99 9
Greece	5,317	3,841	4,268	11,077	8,003	8,892	138 4	124 6
Hungary	10,511	14,514	13,832	21,898	30,238	28,818	72 4	76 0
Italy	5,181	4,246	4,944	10,793	8,845	10,300	122 0	104 8
Luxemburg	59	65	99	123	134	207	91 6	59 4
Netherlands	3 142	2 666	1 715	6,545	5,554	3,573	117 8	183 2
Portugal	957	769	942	1,994	1,603	1,962	124 4	101,7
Romania	18,759	35,535	28,929	39,082	74,033	60,270	52 8	64.8
United Kingdom Engl and Wales	13,171	14,851	15,922	27,440	30,940	33,171	88 7	82,7
Switzerland	181	155	253	377	322	528	117 1	71 4
Totals	*69,184*	*87,481*	*81 306*	*144,133*	*182,253*	*169,392*	*79 1*	*85 1*
Canada	2) 33,900	34 523	34 486	2) 70,600	71,922	71,846	98 2	98 3
United States	109,151	70,777	101,177	227,398	147,452	210,785	154 2	107 9
Totals	*143,051*	*105 300*	*135,663*	*297,998*	*219 374*	*282,631*	*135 9*	*105 5*
Chosen	30 112	22,292	22,578	62,734	46 442	47,038	135 1	133 4
Algeria	12 487	14 150	16,486	26 015	29 480	34,347	88 2	75 7
Egypt	5 071	5,196	4,847	10,564	10,825	10,098	97 6	104 6
Libya	1,243	261	1 019	2,589	543	2,124	476 6	121 9
French Morocco	16 755	33,651	4) 25 173	34,907	70 108	4) 52 444	49 8	—
Tunisia	4,409	1 653	5 027	9 186	3,445	10,472	266 7	87 7
Totals	*39 965*	*54 911*	*52,552*	*83 261*	*114 401*	*109,485*	*72 8*	*76 0*
GRAND TOTALS	**282,312**	**269,984**	**292,099**	**588,126**	**562,470**	**608,546**	**104.6**	**96.7**
OATS								
Bulgaria	2 853	2,989	2,205	8,915	9,341	6,890	95 4	129 4
Finland	14,416	14,357	14,815	45 050	44,864	46,295	100 4	97,3
Greece	3 728	2 241	2 244	11 651	7,002	7,013	166 4	166 1
Hungary	5,987	5 776	6 053	16,834	18,049	18 914	93 3	89 0
Italy	13 324	10 545	12,165	41,639	32,952	38,015	126 4	109,5
Luxemburg	693	836	1,002	2 166	2 612	3,132	82 9	69 2
Netherlands	7,055	6 988	6 277	22,046	21 836	19,615	101 0	112 4
Portugal	2,360	1 847	1,962	7,376	5 770	6,132	127 8	120 3
United Kingdom Engl and Wales	20,115	24,192	26,746	62,860	75,600	83,580	83 1	75 2
Switzerland	514	440	647	1,605	1,375	2,022	116 8	79 4
Totals	*70,445*	*70,211*	*74,116*	*220,142*	*219,401*	*231,608*	*100 3*	*95 1*
Canada	2) 85 400	92,405	118 509	2) 267 000	288,764	370 342	92 4	72 1
United States	361,801	252,512	310 094	1,130,628	789,100	969,044	143 3	116 7
Totals	*447,201*	*344 917*	*428,603*	*1,397,628*	*1 077,864*	*1,339,386*	*129,6*	*104 3*
Algeria	2 866	3,869	2 931	8 957	12,090	9 160	74 1	97 8
French Morocco	926	425	4) 497	2,894	1,328	4) 1,552	218 0	—
Tunisia	441	220	481	1,378	689	1,502	200,0	91 7
Totals	*4,233*	*4,514*	*3,909*	*13,229*	*14 107*	*12 214*	*93 7*	*108 3*
GRAND TOTALS	**521,879**	**419,642**	**506,628**	**1,630,999**	**1,311,372**	**1,583,208**	**124.3**	**103.0**

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w) Winter crop. — *s*) Spring crop — 1) Forecast on 15 June by the "Office national interprofessional du blé" — 2) Rough estimate based on crop condition on 31 July and longtime average yield — 3) Final estimate of production — 4) Incomplete figure than they appeared last month. They are now estimated to reach 435 million bushels against an estimate of 425 millions in July and one of 415 millions in June. It will fall only slightly below last year's record crop and will exceed the 1931-35 average by 50 millions, or 13 per cent. Most of this increase is contributed by Romania and Yugoslavia, while in Poland and Hungary a slight decrease is expected.

Weather continued favourable for the spring crops in the U. S. S. R. and the winter crops yielded a plentiful outturn. Although in recent weeks there were unfavourable reports on the working of the agricultural plan in the U. S. S. R. and of appreciable losses, it appears to us that the excellent conditions of the season constitute a factor of such importance for the final outcome of the crop that there can be no doubt that Soviet production in 1937 is plentiful. It appears probable, therefore, that the U. S. S. R. will enter the world wheat market in 1936-37 with considerable quantities.

In North America, it is now certain that the summer drought has destroyed a large part of the Canadian crops and the outturn of the country is reported as the worst produced for many years. In the United States, on the other hand, owing mainly to the considerable increase in acreage under wheat and also to the season being less unfavourable than in Canada, production is the largest since 1931. The 890 million bushels, forecast in the estimate of 1 August after satisfying internal requirements and the replenishing of stocks, leave a surplus for export that largely offsets the heavy drop in exportable supplies from the new Canadian crop.

In Asia, the final estimate of the Indian crop shows a small increase over the previous one and confirms the expectations that production is slightly above the average. At the present level of prices on the international market, India can still continue to export a moderate amount of wheat. A part of its surplus has already been sent abroad in June and July, but the possibility of further exports depends among other things on the result of the harvest of other cereals and food crops at present in the fields, whose yield is uncertain owing to the irregularity of monsoon rains that are too light in some areas and too heavy in others. The total production of Asiatic countries, excluding China, seems almost the same as last year, for the better results obtained in India and the Far East (Japan, Manchukuo and Chosen) and in Syria and Palestine offset the considerable decrease in the Turkish crop, which, though still above the average, is definitely below the record crop of last year

In North Africa, the estimates published last month showed no changes, except a slight readjustment of Egyptian production. The crop of Libya is very good, but being of little importance it cannot affect the results of this group of countries as a whole, which remain rather mediocre.

In short, the present prospects, as far as can be judged from the information reaching the Institute up to the second decade of August, indicate a slight decrease of about 2 per cent. in the estimate of the total production of wheat in the northern hemisphere. The outturn, at the new figure, however, is still particularly satisfactory, for it is 9 per cent. higher than in 1936 and 2 per cent. above the average of 1931 to 1935.

Wheat production in the northern hemisphere. 1)

(million bushels)

Year	Europe	North America	Asia	Africa	Total
1937 (forecast)	*1,520*	*1,080*	*600*	*120*	*3,320*
1936	1,482	873	603	98	3,056
1935	1,576	923	577	115	3,191
1934	1,550	817	555	136	3,058
1933	1,745	849	572	111	3,277
1932	1,490	1,213	503	128	3,334
1931	1,437	1,277	572	116	3,402
1926-30 (average)	1,341	1,315	518	108	3,282

1) Excluding the U S S R and China

As regards the southern hemisphere, the reports received on the first stages of the wheat crop in Argentina and Australia are not entirely favourable. In Argentina field work was retarded over a considerable part of the country by persistent drought and the processes of sowing and germination were hindered; in the province of Cordoba it is feared that a part of the crop is lost In the province of Buenos Aires however, which is the most important wheat growing area, the condition of the fields up to 20 August was normal and in some cases good In Australia also the growth of the crops up to mid-August was seriously hindered by drought, but after that date good rains fell, bringing a considerable improvement in most of the area affected.

Considering the poor results of the Canadian harvest, it seems to be essential that the southern hemisphere should produce a good or at least average crop this year, to ensure world wheat supplies at a time when the wheat stocks from previous harvests have fallen to such an extremely low level, that it would be dangerous to draw upon them further.

Estimates of the stocks existing on 1 August 1937 in exporting countries and afloat, as indicated by the latest information, are given in the following table and show that actually the mass of surplus stocks, that caused such great anxiety in the course of the past seasons, has been entirely absorbed and that the present total is the lowest recorded since 1926.

Stocks of old crop wheat on 1 August.

(million bushels)

COUNTRIES	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
United States 1)	116	129	134	250	312	342	407	397	294	166	159	122
Canada 2)	40	56	92	128	128	140	137	219	204	212	125	38
Argentina 3)	48	49	68	109	35	49	33	50	90	50	30	20
Australia 3)	12	24	26	29	38	49	38	43	73	46	33	30
Afloat	39	46	45	37	39	38	30	32	35	18	21	26
Total	*255*	*304*	*365*	*553*	*552*	*618*	*645*	*741*	*696*	*492*	*368*	*236*

1) Stocks on 1 July, including flour in the city mills expressed in terms of grain and including also domestic wheat in store in Canada — 2) Including domestic wheat in store in the U S A — 3) Exportable quantities on 1 August.

If the two great exporting countries of the southern hemisphere harvest average wheat crops, at the end of 1937 the balance between the exportable supplies and the requirements of importers throughout the world during the 1937-38 season will be almost even or will show a slight surplus to add to the stocks carried over to next year. We present this balance below, noting that it is given simply as an indication of the statistical position of the 1937-38 season, for it is still based on incomplete data and numerous conjectures, because of the uncertainty of the crop results as a whole and especially of those of the southern hemisphere, which are still far from the harvesting stage.

Exportable surplus of the 1937 *crop*· — Canada and the United States. 240 million bushels; Argentina and Australia. 220 million, U. S. S. R., Danubian countries, North Africa, India and other countries· 150 million, making a total of about 610 million bushels.

Import requirements in 1937-38· — European importing countries 400 million bushels, extra-European importing countries 150 million, making a total of about 550 million bushels. The surplus of exportable supplies of the 1937 crop over the world import requirements forecast for 1937-38 would in this case be 60 million bushels.

* * *

As regards the other cereals, the prospects of the 1937 crop may be summarised as follows:

Rye: — European production is estimated as rather mediocre owing to the poor crops expected in the countries of central Europe (Germany, Poland and Czechoslovakia). The production of North America is abundant.

Barley· — The total European production is reported to be low, crops having suffered severely from the spring drought, particularly in Romania, Poland, Czechoslovakia and Germany. Romania only realised a 50 per cent. crop. In North America the crop is slightly above the average while in North Africa it is definitely low.

Oats·— The production of Europe is mediocre, but in North America it is good.

G. CAPONE

Current information from various countries on wheat, rye, barley and oats.

Europe.

Germany During July the weather was very favourable, in the south, particularly in Bavaria and Wurtenberg, where dry and hot weather mainly prevailed, while inthe north it was generally humid In the country as a whole, soil humidity was regarded as sufficient in 51 per cent of the agricultural area, quite good in 16 per cent and poor in about 30 per cent During the second decade of the month, the dry weather assisted the work of housing winter barley, which was mainly completed.

The dry weather was also favourable for the harvesting of winter rye in many areas.

Belgium: During July the weather was generally favourable. The temperature remained moderate. Early wheat, rye and winter barley were harvested and partly threshed. Yields appear satisfactory for barley, average for wheat and moderate for rye. Oats remained in mediocre condition and will apparently give poor yields.

Bulgaria: The weather in July favoured harvesting and threshing, which had been completed almost everywhere by the end of the month. The crop appears to be good and larger than that of last year.

Denmark The 2nd fortnight of July was very wet and hot throughout the country. The harvest of rye and barley is finished In Jutland the ears of cereals were in many cases poorly filled

Estonia Temperature in July favoured growth but the precipitation varied from place to place While the east and southeast suffered from drought, the rains in other parts were adequate In the Pärnu and Viljandi districts there was even abundant precipitation

The crop condition of mixed grains on 1 August was, in the system of the Institute, 103 as against 93 at the same time last year.

Irish Free State The weather in July was reasonably fine for the first three weeks and fine and warm in the final week

Prospects for all grain crops were remarkably good in view of the difficulties attendant on their sowing, and a special feature of the season has been the comparative absence so far of any lodging The crops developed steadily throughout the month, but the delayed warmth has retarded ripening, and may result in a slightly later harvest

Autumn sown wheat presented an excellent appearance, and in several districts had commenced to ripen. The later sown winter varieties were less promising, being frequently backward and patchy. Spring wheats sown under suitable conditions made good progress and appeared likely to afford average crops.

Oats, both as regards straw and ear, gave indications of an all-round good crop.

The outlook for the barley crop was generally reported as excellent.

The crops have all been comparatively free from any special damage.

The acreage under wheat is slightly below that of last year but yields at least equal to or better than those of that year are anticipated. Acreages of oats and barley are almost the same as last year and improved yields are expected but crops are not yet sufficiently advanced to afford definite information.

Finland The drought and heat that prevailed in June continued in several districts in July. The crop was in advance of a normal year.

The area cultivated to meslin this year is about 40,300 acres against 40,000 in 1936 and 36,000 on the average of the five years ending 1935; percentages 100.6 and 112 0. The corresponding production is estimated at about 575,400 centals (902,100 bushels) against 610,700 (1,053,000) and 523,600 (902,700); percentages 94.2 and 109.9.

France: Harvesting of wheat was finished nearly everywhere by the middle of August and threshing is in progress. Though it is impossible to determine the size of the crop before threshing results are known, particularly in the north, lower yields than last year are expected in several areas where crops have suffered from disease,

Area and Crop Condition.

COUNTRIES	AREA					CROP CONDITION (†)								
	1937	1936	Average 1931 to 1935	% 1937		1-VIII-1937			1-VII-1937			1-VIII-1936		
	Thousand acres			1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
WHEAT														
Germany w)	4,579	4,727	4,794	96.9	95.5	—	—	—	2.8	—	—	—	—	—
Germany *s)	...	404	680	...	...	—	—	—	2.8	—	—	—	—	—
*Austria w)	...	592	529	...	...	2 7	—	—	2.5	—	—	2.6	—	—
*Austria s)	...	37	24	...	..	2.5	—	—	2.4	—	—	2.9	—	—
Belgium	423	424	391	99.8	108 4	—	—	—	—	f)	—	—	—	—
Bulgaria	2,861	2,822	3,023	101.4	94.6	—	—	—	—	—	—	—	—	—
*Denmark	...	295	272	...	...	—	—	95	—	—	—	—	—	93
*Estonia	...	44	46	...	...	w)106	—	—	w)107	—	—	—	—	w)94
Finland	242	215	99	112 4	245.0	—	—	—	—	—	—	—	—	—
France 1)	12,772	12,536	12,573	101.9	101.6	—	—	—	—	—	—	—	—	—
Greece	2,104	2,109	1,755	99 7	119 9	—	—	—	—	—	—	—	—	—
Hungary	3,784	4,029	3,932	93 9	96 2	—	—	—	—	—	—	—	—	—
Italy	12,815	12,683	12,260	101.0	104 5	—	—	—	—	—	—	—	—	—
Latvia w)	154	146	185	106 0	83.4	—	—	—	—	—	—	—	—	—
Lithuania	523	485	507	107 8	103.0	—	—	90	—	—	93	103	—	—
Luxemburg	45	45	34	100.0	131 2	2.1	—	—	2 1	—	—	2 3	—	—
*Norway	...	75	38	. .	...	s) 105	—	—	s) 103	—	—	—	s) 100	—
Netherlands	320	374	315	85.6	101.6	—	—	2)65	—	—	—	2)73	—	—
Poland w)	3,647	3,737	3,859	97.6	94 5	—	—	2) 2.8	—	—	2) 2 8	2) 3.5	—	—
Poland s)	585	568	475	102.9	123.2	—	—	2) 2.8	—	—	2) 2.6	2) 3 2	—	—
Portugal	1,093	1,023	1,376	106 8	79 4	—	—	—	70	—	—	—	—	—
Romania	8,135	8,481	7,893	95 9	103 1	—	—	—	—	—	—	—	—	—
United Kingdom:														
Engl and Wales	1,731	1,704	1,535	101 6	112 7	—	—	—	—	—	—	—	—	—
Scotland	100	94	76	106.7	132.0	e)	—	—	e)	—	—	—	—	—
*Sweden	...	695	701	...	. .	2) 115	—	—	—	—	—	2) 103	—	—
Switzerland	174	172	149	101 3	117 1	85	—	—	86	—	—	68	—	—
Czechoslovakia 3) w)	2,023	2,206	2,094	91.7	96 6	—	—	—	2.8	—	—	—	—	—
Czechoslovakia 3) s)	100	90	135	110.7	74.3	—	—	—	—	—	3.1	—	—	—
Yugoslavia w)	5,342	5,368	5,174	99 5	103.3	—	—	—	—	—	—	—	—	—
Total Europe	*63,552*	*64,038*	*62,634*	*99.2*	*101.5*	—	—	—	—	—	—	—	—	—
U. S. S. R.	4)101,678	96,116	87,437	105.8	116.3	—	—	—	—	—	—	—	—	—
Canada w)	646	509	524	126.8	123.2	—	—	—	101	—	—	—	—	—
Canada s)	5) 24,368	24,780	25,106	98 3	97.1	—	—	35	—	—	51	—	—	45
United States w)	47,079	37,608	35,540	125 2	132.5	—	—	—	—	—	71.0	—	—	—
United States s)	21,119	11,212	16,354	188.4	129.1	—	—	55.8	—	—	71.5	—	—	32.8
Total America	*93,212*	*74,109*	*77,524*	*125.8*	*120.2*	—	—	—	—	—	—	—	—	—
Chosen	839	818	800	102,6	104.9	—	—	—	—	—	—	—	—	—
India 6)	33,222	33,639	33,825	98.8	98.2	—	—	—	—	—	—	—	—	—
*Japan	...	1,686	1,440	...	...	—	f)	—	—	f)	—	—	f)	—
*Syria & Lebanon	...	1,316	1,253	...	...	—	—	—	—	—	—	—	—	—
Total Asia	*34,061*	*34,457*	*34,625*	*98.9*	*98.4*	—	—	—	—	—	—	—	—	—
Algeria	4,062	4,287	3,907	94.8	104.0	—	—	—	—	—	80	—	—	—
Egypt	1,421	1,464	1,549	97.1	91 8	—	—	—	—	—	—	—	—	—
Libya	111	80	46	137.7	241.6	—	—	—	e)	—	—	—	—	—
French Morocco	2,743	3,194	7) 3,019	85.9	—	—	—	—	—	—	—	—	—	—
Tunisia	2,219	1,221	2,019	181.7	109.9	—	—	—	—	—	—	—	—	—
Total Africa	*10,556*	*10,246*	*10,540*	*103.1*	*100.1*	—	—	—	—	—	—	—	—	—
Australia	13,700	12,351	13,982	110.9	98.0	—	—	—	—	—	—	—	—	—
GRAND TOTAL m)	**215,081**	**195,201**	**199,305**	**110.2**	**107.9**	—	—	—	—	—	—	—	—	—
GRAND TOTAL n)	**316,759**	**291,317**	**286,742**	**108.7**	**110.5**	—	—	—	—	—	—	—	—	—

COUNTRIES	AREA					CROP CONDITION (†)								
	1937	1936	Average 1931 to 1935	% 1937 1936 = 100	% 1937 Aver. = 100	1-VIII-1937			1-VII-1937			1-VIII-1936		
	Thousand acres					a)	b)	c)	a)	b)	c)	a)	b)	c)
RYE														
Germany w)	10,404	10,971	10,896	94.8	95.5	—	—	—	—	3.0	—	—	—	—
Germany *s)	...	143	168	...	...	—	—	—	—	3.0	—	—	—	—
*Austria w)	...	905	906	...	...	2.8	—	—	2.7	—	—	2.9	—	—
*Austria s)	...	40	41	...	...	2.6	—	—	2.4	—	—	2.6	—	—
Belgium	378	385	479	98.3	78.9	—	—	—	—	—	g)	—	—	g)
Bulgaria	460	434	517	105.8	88.9	—	—	—	—	—	—	—	—	—
*Denmark	...	326	350	...	...	—	—	96	—	—	—	—	—	91
*Estonia	...	338	363	...	...	113	—	—	114	—	—	—	—	99
Finland	598	593	570	100.8	105.0	—	—	—	—	—	—	—	—	—
France 8)	1,639	1,635	1,712	100.3	95.8	—	—	—	—	—	—	—	—	—
Greece	156	160	178	97.2	87.4	—	—	—	—	—	—	—	—	—
Hungary	1,516	1,607	1,568	94.3	96.7	—	—	—	—	—	—	—	—	—
Italy	259	261	285	99.2	90.9	—	—	—	—	—	—	—	—	—
Latvia	682	637	618	107.0	110.3	—	—	—	—	—	—	—	—	—
Lithuania	1,269	1,216	1,231	104.4	103.1	110	—	—	117	—	—	—	100	—
Luxemburg	19	19	19	100.0	101.3	2.2	—	—	2.2	—	—	2.3	—	—
*Norway	...	15	15	...	...	—	—	w)95	—	—	w)96	—	—	w) 92
Netherlands	557	554	449	100.6	124.0	—	—	z)67	—	—	z)61	z)72	—	—
Poland w)	14,247	14,347	14,099	99.3	101.0	—	—	2.8	—	—	2.8	3.3	—	—
Poland s)	64	63	61	101.7	104.6	—	—	—	—	—	—	—	—	2.9
Portugal	569	575	376	98.9	151.1	—	—	—	69	—	—	—	—	—
Romania	1,046	1,041	939	100.5	111.4	—	—	—	—	—	—	—	—	—
*Sweden	...	530	547	...	...	z) 3.1	—	—	—	—	—	—	—	z) 2.6
Switzerland	37	38	42	97.2	89.1	76	—	—	79	—	—	69	—	—
Czechoslovakia w)	2,389	2,466	2,472	96.9	96.6	—	—	—	—	—	3.2	—	—	—
Czechoslovakia s)	48	44	59	108.9	81.1	—	—	—	—	—	—	—	—	—
Yugoslavia w)	544	541	521	100.4	104.3	—	—	—	—	—	—	—	—	—
Total Europe	*36,881*	*37,587*	*37,091*	*98.1*	*99.4*	—	—	—	—	—	—	—	—	—
U. S. S. R. w)	4) 56,486	57,426	9) 59,791	98.4	94.5	—	—	—	—	—	—	—	—	—
Canada w)	683	457	555	149.4	123.2	—	—	—	—	—	49	—	—	68
Canada s)	5) 182	178	157	102.4	115.6	—	—	40	—	—	48	—	—	49
United States	3,960	2,757	3,021	143 6	131.1	—	—	—	76.9	—	—	—	—	—
Total America	*4,825*	*3,392*	*3,733*	*142.2*	*129.3*	—	—	—	—	—	—	—	—	—
Algeria	4	4	3	97.6	114.4	—	—	—	—	—	—	—	—	—
GRAND TOTAL m)	**41,710**	**40,983**	**40,827**	**101.7**	**102.0**	—	—	—	—	—	—	—	—	—
GRAND TOTAL n)	**98,196**	**98,409**	**100,618**	**99.8**	**97.6**	—	—	—	—	—	—	—	—	—
BARLEY														
Germany w)	1,134	1,060	711	107.0	159.6	—	—	—	2.9	—	—	—	—	—
Germany * s)	...	2,955	3,248	...	...	—	—	—	2.7	—	—	—	—	—
*Austria w)	...	21	19	...	...	2.5	—	—	2.5	—	—	2.4	—	—
*Austria s)	...	373	396	...	...	2.7	—	—	2.6	—	—	2.4	—	—
Belgium	61	74	86	82.5	71.1	—	—	—	—	f)	—	—	—	g)
Bulgaria	530	484	569	109.7	93.2	—	—	—	—	—	—	—	—	—
*Denmark	...	909	860	...	...	—	—	98	—	—	—	—	—	86
*Estonia	...	250	263	...	...	—	—	97	—	—	—	—	—	85
Finland	324	324	312	100.0	103.7	—	—	—	—	—	—	—	—	—
France 8)	1,756	1,790	1,795	98.1	97.8	—	—	—	—	69	—	—	—	—
Greece	522	534	536	97.8	97.4	—	—	—	—	—	—	—	—	—
Hungary	1,180	1,161	1,152	101.6	102.4	—	—	—	—	—	—	—	—	—
Italy	479	482	510	99.3	93.9	—	—	—	—	—	—	—	—	—
Lithuania	524	529	501	99.1	104.6	110	—	—	103	—	—	106	—	—
Luxemburg	5	5	8	100.0	66.3	—	3.0	—	—	3.0	—	2.5	—	—

COUNTRIES	AREA					CROP CONDITION (†)								
	1937	1936	Average 1931 to 1935	% 1937		1-VIII-1937			1-VII-1937			1-VIII-1936		
				1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
	Thousand acres													
*Norway	...	149	143	...	...	104	—	—	103	—	—	102	—	—
Netherlands . . .	122	106	69	116.0	177.7	—	—	—	—	—	—	—	—	—
Poland . . w)	62	62	93	99.7	66.8	—	—	—	—	—	—	2) 3.4	—	—
s)	2,971	2,870	2,900	103.5	102.4	—	—	2) 2.7	—	—	2) 2.5	2) 3.2	—	—
Portugal	194	196	171	98.7	113.2	—	—	—	68	—	—	—	—	—
Romania	3,747	3,980	4,411	94.2	85.0	—	—	—	—	—	—	—	—	—
United Kingdom:														
Engl and Wales.	823	819	879	105.5	93.7	—	—	—	—	—	—	—	—	—
Scotland	82	72	78	113.5	105.3	—	—	—	—	—	—	—	—	—
*Sweden	...	255	270	...	...	2)102	—	—	—	—	—	—	—	2) 98
Switzerland . . .	11	10	15	102.5	70.3	77	—	—	75	—	—	70	—	—
Czechoslovakia w)	19	18	14	102.8	132.0	—	—	—	—	—	—	—	—	—
s)	1,612	1,553	1,672	103.8	96.4	—	—	—	—	3.0	—	—	—	—
Yugoslavia . . w)	605	597	614	101.3	98.6	—	—	—	—	—	—	—	—	—
Total Europe . . .	*16,763*	*16,726*	*17,096*	*100.2*	*98.0*	—	—	—	—	—	—	—	—	—
U. S. S. R. . . s)	4) 20,068	4) 20,150	17,917	99.6	112.0	—	—	—	—	—	—	—	—	—
—														
Canada	5) 4,450	4,432	3,741	100.4	118.9	—	—	63	—	—	79	—	—	56
United States . .	11,166	8,322	10,596	134.2	105.4	—	—	68.6	—	—	79.3	—	—	48 4
Total America . .	*15,616*	*12,754*	*14,337*	*122.4*	*108.9*	—	—	—	—	—	—	—	—	—
Chosen	2,685	2,616	2,481	102.7	108.2	—	—	—	—	—	—	—	—	—
*Japan	...	1,918	1,979	...	...	—	f)	—	—	f)	—	c) f)	—	—
*Syria & Lebanon .	...	739	766	...	...	—	—	—	—	—	—	—	—	—
—														
Algeria	2,951	3,120	3,240	94.6	91.1	—	—	—	—	—	60	—	—	—
Egypt	271	282	308	95.9	88.0	—	—	—	—	—	—	—	—	—
Libya	346	179	407	193.1	85.2	—	—	—	—	—	—	—	—	—
French Morocco .	4,201	4,104	7) 3,684	102.4	—	—	—	—	—	—	—	—	—	—
Tunisia	1,503	741	1,240	202.8	121.2	—	—	—	—	—	—	—	—	—
Total Africa . . .	*9,272*	*8,426*	*8,879*	*110.0*	*104.4*	—	—	—	—	—	—	—	—	—
GRAND TOTAL m)	**44,336**	**40,522**	**42,793**	**109.4**	**103.6**	—	—	—	—	—	—	—	—	—
n)	**64,404**	**60,672**	**60,710**	**106.2**	**106.1**	—	—	—	—	—	—	—	—	—
OATS														
*Germany	...	6,850	7,796	...	...	—	—	—	2.9	—	—	—	—	—
*Austria	...	713	755	...	...	2.4	—	—	2.7	—	—	2.2	—	—
Belgium	521	534	648	97.6	80.5	—	—	—	—	—	g)	—	—	g)
Bulgaria	269	258	299	104.2	90.1	—	—	—	—	—	—	—	—	—
*Denmark	...	931	943	...	...	101	—	—	—	—	—	—	—	85
*Estonia	...	341	350	...	...	105	—	—	—	—	—	—	—	97
Finland	1,122	1,087	1,142	103.2	98.3	—	—	—	—	—	—	—	—	—
France 8)	7,908	8,217	8,312	96.2	95.1	—	—	—	—	—	68	—	—	—
Greece	373	378	336	98.8	110.9	—	—	—	—	—	—	—	—	—
Hungary	572	529	560	108.2	102.3	—	—	—	—	—	—	—	—	—
Italy	1,075	1,075	1,093	99.9	98.4	—	—	—	—	—	—	—	—	—
Lithuania	861	883	867	97.6	99.4	117	—	—	103	—	—	110	—	—
Luxemburg . . .	65	65	69	100.0	94.1	—	—	3.3	—	—	3.3	2.4	—	—
*Norway	...	210	231	...	...	106	—	—	102	—	—	—	—	99
Netherlands . . .	358	333	339	107.4	105.7	—	—	2)69	—	—	2)65	2)73	—	—
Poland	5,739	5,572	5,458	103.0	105.1	—	—	2) 2.7	—	—	2) 2.4	2) 3.3	—	—
Portugal	723	719	442	100.6	163.6	—	—	—	69	—	—	—	—	—
Romania	1,900	1,986	2,035	95.6	93.4	—	—	—	—	—	—	—	—	—

COUNTRIES	Area: 1937 (Thousand acres)	Area: 1936 (Thousand acres)	Area: Average 1931 to 1935 (Thousand acres)	Area: % 1937: 1936 = 100	Area: % 1937: Aver = 100	Crop condition: I VIII 1937			Crop condition: I VII 1937			Crop condition: I VIII 1936		
United Kingdom														
Engl and Wales	1,222	1,420	1,510	86.1	81.0	—	—	—	—	—	—	—	—	—
Scotland	816	829	840	98.5	97.1	—	—	—	—	—	—	—	—	—
*Sweden		1,654	1,629			2) 109	—	—	—	—	—	2) 103	—	—
Switzerland	27	26	35	104.1	77.5	83	—	—	81	—	—	75	—	—
Czechoslovakia	1,937	1,895	1,989	102.3	97.4	—	—	—	—	—	3,1	—	—	—
Total Europe	*25,488*	*25,806*	*25,974*	*98.8*	*98.1*	—	—	—	—	—	—	—	—	—
U S S R	4) 43,193	4) 43,525	42,460	99.2	101.7	—	—	—	—	—	—	—	—	—
—														
Canada	5) 12,960	13,118	13,468	98.8	96.2	—	—	60	—	—	73	—	—	57
United States	35,933	33,213	37,553	108.2	95.7	79.5	—	—	83.8	—	—	—	—	55.0
Total America	*48,893*	*46,331*	*51,021*	*105.5*	*95.8*	—	—	—	—	—	—	—	—	—
*Syria & Lebanon	.	28	30			—	—	95	—	—	—	—	—	—
—														
Algeria	477	473	476	101.0	100.3	—	—	—	—	—	60	—	—	—
French Morocco	94	80	7) 66	116.8	—	—	—	—	—	—	—	—	—	—
Tunisia	126	62	65	204.0	195.1	—	—	—	—	—	—	—	—	—
GRAND TOTAL (m)	75,078	72,752	77,602	103.2	96.8	—	—	—	—	—	—	—	—	—
GRAND TOTAL (n)	118,271	116,277	120,062	101.7	98.5	—	—	—	—	—	—	—	—	—

(†) See explanation of the various systems on page 573 — *) Countries not included in the totals — a) Above the average — b) Average — c) Below the average — d) Very good — e) Good — f) Average — g) Bad — h) Very bad — m) Not including U S S R — n) Including U S S R — w) Winter crop —) Spring crop — 1) Acreage sown up to 1 January — 2) Middle of the previous month — 3) Including spelt — 4) Area provided for in the Plan — 5) Area to be sown according to farmers' intentions on 1 May 1937 6) Final estimate — 7) Incomplete figure — 8) Acreage sown up to 1 May — 9) Average of two years

scorching and weeds. Notwithstanding the more favourable results secured in some parts of the country, particularly in the east, the southeast and the southwest, the crop does not appear to reach the expectations of early summer and it is likely, on the whole, to be poor. The quality of the wheat is, however, decidedly better than last year.

Greece The crop appears up to expectations and very abundant.

Hungary During the period from 6 to 20 July the temperature as very variable, it was very low for some days but during the greater part of the period it was normal for the season. Rainfall was above average almost everywhere in the Transdanube area but was below average in most of the mountainous areas of the north and in the great plains. The period 21 July to 3 August was first marked by a very high temperature and later by cool weather for the time of year. The rainfall of the last two weeks was above average over 3/4 of the country and greatly hampered the work of gathering in and threshing the crops.

At the end of July the wheat harvest was finished throughout the country. Treshing, winnowing and housing continue. Though the grains are rather hard and discoloured in some parts, their quality may be considered good. The quality and quantity of straw are good on the whole. The rye harvest was in progress at the end of July. The grains are hard and thin in some districts. The quality of the straw is mediocre. The threshing of winter barley is already finished everywhere. The grains are of good quality The threshing of spring barley is still in progress in some districts. In certain areas the grains are hard and discoloured and the straw production is below average The harvest and threshing of oats are in progress. Late crops have been rather scorched by the sun and the grains are thin in many districts. The production of straw is very variable, but on the whole is mediocre

Italy: Weather was generally normal in the first half of July in the greater part of the continental and insular provinces. Late wheat suffered some rust damage. During the second half of the month weather was very variable. In north, central and south Italy there was frequent rain accompanied by hail. In the islands, however, weather was particularly dry.

Latvia: The first half of July was marked by lack of rain while during the second half rainfall was intense and continuous. In the north of the provinces of Vidzome and Latgale rainfall reached 4 to 6 inches In other parts of the country rainfall was between 3 and 4 inches These continuous rains considerably hampered the progress of the work in the fields and have spoilt the good harvest of winter cereals. From the reports of agricultural correspondents the crop condition of spring barley was average in 46 4 per cent. of cases, above average in 34.6 per cent. and below average in 18 0 per cent. Corresponding figures for oats were 37 2, 55 1 and 7.7 per cent.

Lithuania: The dry weather of June continued during the first fortnight of July. The second half of the month was marked by very wet weather The rye harvest began about 10 July, two weeks earlier than normal. Rain greatly hampered the harvest so that a considerable part of this crop remained unharvested up to the end of the month. Weather conditions were very favourable for spring cereals.

Luxemburg The sunny and excessively hot days of July caused an early ripening of cereals Compared with a normal year, the harvest is early. The yield and quality are satifactory The persistently dry weather hindered the growth of barley and oats.

Netherlands Though precipitation was normal on average, the range was very considerable. At the end of the second decade of July condition of wheat was practically the same as a month before. Sowings were frequently sparse but lodging was rare and stem rot was less widespread than last year Harvesting of rye was begun on light lands, crop condition recovered latterly but in many districts the fields were too thinly sown In the fen colonies rye developed well.

Harvesting of winter barley was finished and its condition was good. Spring barley suffered through the drought. Condition of oats was good but black oats suffered from laying.

Poland: According to reports of the Central Office of Statistics, weather during the first half of July was rather cold and rainfall sporadic and insufficient. According to 29 per cent of the crop correspondents, soil moisture was sufficient while 37 per cent. reported inadequate moisture and 34 per cent. serious deficiency.

During the first half of July crop conditions of cereals remained unchanged, except for winter rye, which deteriorated slightly.

Crop condition.

	15 VII	1 VII	15 VI
Winter wheat	2.8	2.8	2.8
Winter rye	2.8	2.9	2.8
Spring rye	2 8	2.8	2 6
Spring barley	2 7	2 7	2.5
Oats	2.7	2 7	2.4

Winter wheat was best in Tarnopol (3.4) and Volhynia (3 3) in Kraków, Lwów and Stanislawów (3.1) and Wilno (3.0). It was worst in Pomorze (2 2) and Warsaw (2 4)

Spring crops (barley and oats) were best in Pomorze (barley 3 1, oats 3 1) and Silesia (3 2, 3 3) They were worst in Lublin (2.2, 2.4), Polesie (2-3, 2 4), Lvów (2 5, 2 4) and Stanislawów (2 0, 2.2).

According to the State Meteorological Institute, weather during the third week of July was generally very hot, except in the east and north-east where temperatures were below normal and where there were rains

During the fourth week of July weather was cold, windy and wet.

Portugal The lack of rain and excessive heat during part of June did damage to cereals in high and dry areas but in damp, low-lying areas the crop condition was better The production of cereals was much better than the very poor crop of last year and, except for wheat, has exceeded the average of 1931-1935.

Romania Owing to the dryness of the soil, autumn cultivation met with great difficulty

United Kingdom The weather during July was characterised by the prolonged absence of sunshine throughout the country. Thunderstorms, with heavy rain, were frequent in the first half of the month, particularly in the north and east of England and the Midlands, while exceptionally heavy rain fell in the east of Scotland during the first week. A dry spell followed in England and Wales during the second fortnight but temperatures were low for the time of year. In Scotland, the middle weeks of July were dull, wet and cold, but towards the end of the month the weather was warm and bright.

Corn crops were variable at the end of July but on the whole were in moderate condition, and needed more sunshine to ripen the grain, particularly in Scotland. Harvesting had begun in a few areas but was not yet general Wheat was reported to have made fair progress although in some districts the crop was still thin and patchy, especially late sown spring wheat Growth in Scotland was retarded by lack of sun and in one district smut was in evidence, but good crops were expected. Barley improved during the month, but appeared to be short in the straw In Northern Ireland barley was in fair condition at the beginning of July despite unfavourable conditions for late sowings. In Scotland both barley and oats had suffered some lodging owing to the rains, and a dry spell was much needed Oats in England and Wales were variable, winter oats being on the whole on average crop, while spring sown was inclined to be patchy and short in the straw. In Northern Ireland oats at the beginning of July were backward but promised well, despite serious attacks by the leather jacket grub and wireworm.

Although the acreage under wheat in England and Wales at 1,731,000 acres was more than last year (1,704,500 acres) and well above the preceding 5 year average (1,535,400 acres), yet the condition of the crop is such that production at 31,024,000 centals (51,706,700 bushels) was forecast at the end of July to be only slightly higher than last year (30,867,200 or 51,445,300), and actually below the 5 year average (31,409,300 or 52,348,800). In Scotland however, both the acreage of wheat at 100,000 acres and estimated production at 2,508,800 centals (4,181,300 bushels) are very high. These figures compare with 93,700 acres and 2,128,000 centals (3,546,700 bushels) last year and 75,800 acres and 1,935,400 centals (3,225,600) for the average of 1931 to 1935. The 1937 acreage is thus 132.0 per cent. of the average and the production 129.6 per cent.

Sweden. During July the crop condition of winter wheat was improved by weather conditions, rye also improved but was still affected by the damage suffered in winter, particularly in Central Sweden. The growth of spring cereals was rather hampered by unfavourable weather especially at the time of sprouting, but nevertheless a normal crop was expected.

Switzerland: Weather conditions having been good, the ripening of cereals took place with remarkable rapidity, and an extraordinarily fine crop was harvested. Quality, in particular is exceptionally good, for the grains are well formed, there is only a little rust and the harvest was completed in excellent conditions. On the other hand, the quantity of the yields, particularly of rye, is not entirely satisfactory, the winter season having left the crops too thin.

Yugoslavia: The frequent and stormy rains that fell in July hampered harvesting and threshing operations and even the housing of cereals, which was finished throughout the country only at the end of the month. Despite the unfavourable weather conditions, the quality of cereals and particularly wheat remained good and is regarded as better than last year.

It is estimated that the yield of cereals this year will be much worse than last year, particularly for barley, oats and even for rye. The wheat harvest which had suffered damage in the main producing areas is also regarded as 10 to 20 per cent. below the very abundant crop of 1936 and is estimated at about 53.0 to 57.0 million centals (84.5 to 95.5 million bushels).

U. S. S. R. The area harvested up to 10 August was 127,812,000 acres, or 58 per cent. of the provisions of the Plan, against 140,412,000 acres, or 64 per cent., at the same date last year. The lateness of the harvest compared with last year and with the Plan for this year is due in part to the frequent rains of July and the first decade of August which impeded harvesting in many regions.

The following were the percentages of the area harvested up to 10 August: Crimea, 100 per cent., Ukraina 97 per cent., the Azov-Black Sea region 96 per cent.; White Russia 86 per cent., Azerbaizhan 81 per cent.; Turkmenistan 79 per cent.; Georgia 67 per cent. Harvesting had barely commenced in Siberia.

Up to 10 August, threshing of the cereals cropped from an area of 63,248,000 acres had been completed, that is, 49 per cent. of the corresponding area last year. Corresponding figures for 1936 were 78,603,000 acres and 56 per cent.

At present, no official estimate either of the total cereal harvest or of the outturn of the various crops is available but, according to the information in the Soviet Press on the first threshing results and on the harvest situation in general, the outturn is still expected to be good. It appears that winter rye was in better condition than the other cereals.

The Government has fixed the areas and dates on which this year's autumn sowings are to be made. Measures have also been taken this year to introduce a rational rotation system worked out for each region.

The following table shows the area stipulated in the Plan for this year compared with the 1936 Plan and with the average of the areas actually harvested.

	1937-38	1936-37	Average 1933-34 to 1935-36	% 1937-38	
				1936-37 = 100	Average = 100
Winter wheat	37,306,000	36,797,000	32,373,700	101.4	115.2
Winter rye	50,284,200	56,485,700	59,002,000	89.0	85.2
Winter barley	1,645,700	1,505,900	...	109.3	...

On 10 August, 780,000 acres had been sown with winter cereals compared with 2,007,000 acres up to the same date last year

America

Argentina (Telegram of 19 August) The cereal crops in a large part of the country are suffering from drought In the Provinces of Santa Fé, Cordoba and in the Pampa field work is late and the germination of the first sowings is slow Losses of wheat sowings are expected to occur in Cordoba In the Province of Buenos Aires the crop situation varies from average to good while in Entre Rios it is considered to be normal

Canada Harvesting was well started at the beginning of August Heavy rains caused a considerable lodging of crops in Southern Manitoba Except for the late fields, it was considered that rust would not seriously affect the wheat crop in that Province since the infection developed too late to cause much damage The outturn for the Province was expected to be above average. Some further deterioration occurred in Northeastern Saskatchewan as a result of the continued dry weather but in the northwestern corner rains stimulated the late crops Low yields were in prospect for the Province with a great part of the acreage yielding nothing but feed Crops ripened quickly in Alberta as a result of the July rains and though yields promised to be below average fairly good commercial crops were in prospect over much of the Province Hail caused losses at a number of points in all three Provinces but although serious in localized areas, damage on the whole was not unduly heavy Insects caused some loss.

The official report on crop conditions as at 31 July reflected a further sharp decline in the prospects of spring wheat The condition in Manitoba and Alberta was 90 per cent and 51 per cent respectively but the figure for Saskatchewan was only 14 per cent. and this brought the average for the whole crop down to 35 per cent as compared with 51 per cent. a month earlier This condition figure indicates that the total spring wheat outturn will be roughly 88 million centals (146 million bushels) which, together with the official estimate of the winter wheat crop (10 million centals or 17 million bushels), would make a total wheat outturn for Canada of only 98 million centals (163 million bushels)

The condition of barley and oats on 31 July was 63 and 60 per cent. respectively, both crops having declined seriously since the last report. The indicated outturn for both these crops is now below the 1936 figures

The area sown to wheat in the Prairie Provinces this year is estimated at 24,590,000 acres compared with 24,522,000 acres in 1936 and 23,293,000 acres in 1935.

The crop report referring to the first week of August indicated that harvesting was under way in all parts of the country In the Maritime Provinces crops were being forced to maturity by hot dry weather which was likely to reduce the yields of late crops if rains did not come. The cutting of spring grains began in Quebec In Ontario the yields of fall wheat were below expectations owing to rust damage while some late fields of spring grains will also show reduced yields as a result of rust infection In Manitoba occasional showers delayed harvesting but work made good progress. Some good yields of wheat were obtained but rust damage lowered grades and was expected to cause further losses to the late crops. Cutting became general in those areas of Saskatchewan where there was sufficient prospect to warrant the expense of harvesting but weed growth made it difficult to crop many fields Yields were low wherever threshing had been done In Alberta prospects were variable Some good yields were indicated but in some sections the outturn of the crop will range from fair to poor Serious frost damage occurred in the Peace River district Grain crops in British Columbia promised good yields and harvesting was well in hand

The report issued on 17 August indicated that steady progress was being made with the harvesting of the Prairie grain crops Cutting and threshing went ahead rapidly in Manitoba where more than half the crop had been cut. Midweek showers halted threshing operations for a few days but the work was resumed again with no scarcity of labour Yields were fair to good with some crops turning out as much as 21 centals (35 bushels) per acre Hot, dry weather in Saskatchewan facilitated the harvesting of such crops as promised any return of threshed grain. The best districts were expected to average 9 centals (15 bushels) per acre although odd fields yielded up to 15 centals (25 bushels). Less favoured areas returned from 1 8 (3) to 6 (10) Heavy weed growth added to the difficulties of garnering short-strawed crops In Alberta cool, wet weather held up harvesting and retarded the maturing of late crops Warm dry weather was needed to hasten the ripening of grain in most of the area north of Calgary. In the southern part of the Province cutting and threshing were well advanced with yields reported as fair and grades high

United States· A further increase in the estimate of the 1937 winter wheat crop was made in the August crop report of the Department of Agriculture The new estimate, which was computed when threshing was well advanced, indicates an outturn of 412,887,000 centals (688,145,000 bushels) representing a yield of 8.8 centals (14.6 bushels) per acre.

The condition of the spring wheat crops declined during July, the estimated percentage of the normal on 1 August being 55.8 against 71.5 on 1 July. The yield is now expected to be 5 8 centals (9.6 bushels) per acre as in 1936 against the ten-year (1923-32) average of 7 4 centals (12 4 bushels). Production is now put at 121,364,000 centals (202,274,000 bushels). Thus, the total wheat crop according to present estimates, will reach 534,251,000 centals (890,419,000 bushels) compared with 375,877,000 centals (626,461,000 bushels) in 1936 and a five-year (1931-35) average of 407,781,000 centals (679,637,000 bushels); percentages, 142.1 and 131.0.

During the first week of August the threshing of the winter wheat crop was almost completed in the main areas. Harvesting and threshing made good progress in the northwest with conditions favourable and yields satisfactory. Good progress was also made with the spring wheat crops. Results vary widely in the Dakotas but yields in Minnesota are mostly good to excellent. Ploughing for winter wheat has begun in the northeast.

Temperatures during the first decade of August were generally high, especially in the interior and northeast with rainfall largely confined to local showers in the last. Much of the Great Plains were becoming seriously dry. Similar conditions prevailed up to the middle of August. The grain harvest continued with varying results.

The rye crop is estimated in the August crop report at 29,047,000 centals (51,869,000 bushels) or more than double the light production of 1936 and more than 50 per cent. larger than the five-year average. There is a widespread increase in the acreage this year and fair to good yields were expected rather generally.

Barley deteriorated in condition during July and the estimate of the outturn was reduced to 109,151,000 centals (227,398,000 bushels). The average yields however, are still expected to be considerably better than last year but they are slightly below average in most of the North Central and Western States where subnormal conditions prevail as a result of continued drought.

The production of oats, as indicated on 1 August, is 361,801,000 centals (1,130,628,000 bushels) which is 43 per cent. more than the 1936 crop and 17 per cent. above the 1931-35 average The crop ranks among the largest of recent years and yields compare well with the average. Growth of the crop in the North Central States east of the Missouri River has been unusually good and excellent yields were expected Yields considerably above average were obtained in the Southern States with the exception of Oklahoma and Texas The only area indicating lower than average yields was that extending from Montana and North Dakota southward through Texas

Asia

Palestine. The temperature in July was exceptionally low, with however a slight rise in the last week, there were heavy storm conditions which were very favourable for the ripening of cereals and the harvest was earlier than last year. Yields were much better than last year

Africa

Algeria July was marked by high temperatures, lack of rain and violent winds. Harvests were finished fifteen to twenty days earlier than usual in the low-lying plains and eight to ten days earlier in the high areas. The dry weather of July helped the ripening of the grains, which are on the whole of good quality, a little scorching was reported on the high plateaux and grains were cracked or speckled. The crop estimates made last month have not been altered.

French Morocco Harvests were finished in July and threshing was in full swing where the crop was not harvested with combine-harvesters; the high temperature and dry air favoured the work of threshing Reports confirm the estimates already made for the various cereals, which are given in the general table.

Tunisia: The months of June and July were marked by almost total lack of rain; the temperature was moderate and rather below average in June but fairly high in

July The scirocco blew normally in June, particularly at the beginning of the first decade and on the 23nd; in July, in was stronger in the first decade and from the 27th to 30th

Results were good or average, excellent in parts of the north and centre but on the whole mediocre in the south, the specific gravity of wheat was high on the whole, and hard wheats were of good quality; the new variety of hard wheat Sindyouk-Mahmoudi gave good results, comparable with those of Florence-Aurore among soft wheats.

Union of South Africa. Weather in general during June was dry and cold but some rains fell in the winter-rainfall areas Wheat in the southwest of the Cape Province sprouted better this year than for many years past. In the northwest, where rain followed a dry period during sowing, it was expected to sprout well. Prolonged drought in the south coastal area made it too late to sow wheat even if rain fell later. It was also too dry to sow winter crops in June in the border districts and the north-eastern area of Cape Province

Winter-crops in the Orange Free State were weak at the end of June, and their fate depended on early rains

In the Transvaal, winter wheat was doing well following a mild spell of weather during June Growth was a little retarded however, owing to late sowing, the sowing was carried out over practically the some acreage as last season, despite difficulties experienced in consequence of the widespread prevalence of malaria among both Europeans and natives If all goes well, an excellent harvest is expected

Oceania

Australia According to a cable received on 16 August, rainfall was deficient for the wheat crop in Western Australia and New South Wales last month, condition was unfavourable and immediate rainfall was needed Crop condition in South Australia was excellent while in Victoria, though crop condition is fairly satisfactory, the crop was late and rain was urgently needed everywhere Subsequent to this cable, there were reports of good rains in the east of the continent and of a relief in the drought also in the west.

Current information on maize.

Bulgaria Despite the somewhat dry, hot weather of July, development was normal

Greece The rains in July improved crop condition, which was very satisfactory almost everywhere save in the Rhodope, Mitylene and Chios areas, where the drought had been severely felt.

Hungary Maize is in good condition, its appearance is healthy and fresh, the straw is long and well developed and the ears are large and plentiful.

According to the most recent estimate, production of maize this year is about 60,125,400 centals (107,367,000 bushels) against 57,168,200 (102,086,000) in 1936 and 40,898,200 (73,033,000) on the average of the five years ending 1935, percentages 105.2 and 147 0

Italy: During the first half of July, the growth of maize, as a result of favourable weather conditions was very good in nearly all parts of north and central Italy. During the second half of July, weather was very variable but on the whole, no damage was done to maize, crop condition of which at the end of the month gave promise of a plentiful crop.

Portugal: In low-lying and irrigated areas the appearance of maize is excellent and promises an abundant crop; in the unirrigated areas, on the other hand, the crop condition is not satisfactory and the yield will be below the forecasts.

Maize.

COUNTRIES	AREA					CROP CONDITION †)								
	1937	1936	Average 1931 to 1935	% 1937		1-VIII 1937			1-VII-1937			1-VIII-1936		
	1,000 acres			1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria	...	158	158	...	...	2.1	—	—	2.3	—	—	2.4	—	—
Bulgaria	1,441	1,486	1,757	96.9	82.0	—	—	—	—	—	—	—	—	—
France 1)	840	796	812	105.4	103.4	—	—	—	68	—	—	—	—	—
Hungary .	2,956	2,810	2,812	105.2	105.1	—	—	—	—	—	—	—	—	—
Italy 2) . .	3,197	3,235	3,246	98.8	98.5	—	—	—	—	—	—	—	—	—
Portugal	...	1,057	1,014	.	.	—	—	—	—	—	—	—	—	—
Czechoslovakia 3) .	238	212	4) 208	112.1	114.2	—	—	—	—	—	—	—	—	—
—														
Canada	161	164	145	97.9	110.7	—	—	89	—	—	87	—	—	82
United States . .	5) 96,146	6) 92,829	6) 102,079	103.6	94.2	83.2	—	—	82.1	—	—	—	—	46.8
—														
French Morocco	1,087	1,124	911	96.7	119.4	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 573. — *a)* Above the average — *b)* Average — *c)* Below the average 1) Areas estimated on 1 June 2) Spring maize (excluding summer maize, i e, *cinquantino*') 3) Crop grown alone — 4) 1934 and 1935 only — 5) Area expected to be harvested — 6) Area harvested

Romania Crop condition toward the end of July was very precarious owing to the drought The Government prohibited export Subsequently the rains in the majority of the areas affected by the drought improved prospects but only a small crop is expected

(Telegram of 24 August): According to the most recent estimate production of maize this year is about 92,665,000 centals (165,474,000 bushels) against 123,724,000 (220,936,000) in 1936 and 118,327,000 (211,299,000) on the average of the five years ending 1935, percentages 74.9 and 78.3.

Yugoslavia The rainy weather of July was very favourable for the growth of maize Crop condition particularly in the principal producing areas was very good during the whole month

At the beginning of August the sunny weather also assisted the formation and the ripening of the grains Unless something unforeseen occurs, the crop this year is expected to be very good.

U. S. S. R : The frequent and sometimes heavy rain which fell in the second fortnight of July and still more in the first fortnight of August, favoured the growth of maize.

United States: The area of maize for harvest, according to the official crop report of 1 July, is 96,146,000 acres, an increase 3.6 per cent on the harvested area of 1936. General increases in the acreage for harvest, ranging from moderate in the important North Central States to large in the upper Great Plains States, much more than offset the decreases in the Southern States and Missouri Short feed supplies, high prices and a fair to good planting season were the main factors influencing an increase in the acreage for harvest this season The total acreage planted to maize was, however, smaller than that of a year ago but in 1936 drought, heat and insect damage resulted in drastic reductions in the acreage remaining for harvest in some areas.

The 1 August estimate of the production of maize is 1,488,809,000 centals (bushels 2,658,748,000) as compared with the estimate of 1,440,237,000 centals (2,571,851,000 bushels) issued in the previous month The new figure is 73.9 per cent. larger than the 856,423,000 centals (1,529,327,000 bushels) of 1936 and 13.9 per cent larger than the five year average of 1,307,192,000 centals (2,334,271,000 bushels). The crop continued to make satisfactory progress during the month of August, except in some central and western sections where it suffered from drought and heat

Indo-China. In Cambodia, the crops sown at the beginning of June suffered from drought during June It is estimated that a third of the area has been particularly affected and maize sown early is threatened with serious damage. Yields are already considered as reduced on the whole, but on the other hand the considerable extension of acreage might, it is estimated, offset the effects of the drought and the production of Cambodia might still be normal this year, if floods do not come later and cause serious losses.

In Cochin-China, the rise in prices has caused a considerable increase in the maize acreage, especially in the three largest maize producing provinces, the percentage increase compared with last year is as follows in each of these three provinces. about 50 per cent. in Chaudoc, 65 per cent in Baria and 60 per cent in Bienhoà, on the other hand, a slight decrease is reported, owing to the dry weather at the time of sowing, in certain of the less important producing provinces (Sadec, Tánange and Trovinh) In Chaudoc, the drought which prevailed in the second half of June, at the time of formation of the ears, did serious damage, which seemed likely to cause a fall in yield of 20 to 30 per cent, if rain did not come in the first days of July, in Baria and Bienhoà, where almost as much red maize for export is grown as white maize, despite the lack of rain in the second decade of June, fertilization took place under good conditions and a satisfactory yield is anticipated (about 9 centals or 16 bushels per acre).

In Tonkin, the harvest of the fifth month crop is finished In Annam yields are quite satisfactory on the whole in the north and seem likely to vary between 9 and 13 centals (16 and 24 bushels) per acre. In central Annam, the results of the fifth month harvest was frequently reported at less satisfactory, the season of the 8th month crop has begun. The yield appeared quite satisfactory in south Annam, with 9 centals (16 bushels) an acre, but poor in the extreme south.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area

	1937 acres	1936 acres
Area harvested in May	163,000	160,900
Area harvested from 1 January to 31 May .	2,751,100	3,016,700
Area of standing crops at the end of May .	1,115,900	1,158,000
Area harvested in June	347,200	337,600
Area harvested from 1 January to 30 June .	3,099,000	3,354,500
Area of standing crops at the end of June .	994,900	1,090,000

Palestine. At the end of July, the condition of dourrah maizes was excellent and yields much above last year were anticipated.

Egypt · Sowing of the maize (*Nili crops*) started in the South of the Delta about the end of July and approached termination there by the end of August. The general sowing is being carried out in the North of the Delta and Middle Egypt, and the early-sown cultivations in Upper Egypt The work of thinning, hoeing, manuring and watering is being carried out in accordance with the needs of the crops. Germination and growth are proceeding satisfactorily

Algeria: The acreage of maize is practically the same as last year, which was 15,800 acres. Following high temperatures, lack of rain and violent winds in July, the crop condition at the end of the month was only average, being 60 in the system of the country; a rather higher yield than last year was anticipated

French Morocco. The great heat that prevailed in July affected maize. Nevertheless, irrigated crops, of which there are many, will give good or even excellent yields which will partly offset the deficit of crops grown on unirrigated fields The estimated production is however mediocre 2,932,000 centals (5,236,000 bushels), against 6,644,000 (11,865,000) and an average of 3,443,000 (6,148,000) in 1931-35, this is a decrease of 55 9 per cent and 14 8 per cent respectively, although the acreage was almost equal to last year's, and was 19 per cent above the average

The estimate of production of sorghum and millet was reduced 10 per cent. compared with last month to 1,058,000 centals (1,890,000 bushels), which represents a decrease on last year of 40 per cent despite the increase in acreage, but an increase on the average of 9 per cent

Tanganyika Record plantings were made in Moshi, Northern Province. Very good crops were expected in Tanja Province In Lake Province the crops are more patchy

Tunisia The crop of maize and sorghum, which was in progress in July in the north (round Bizerta), was reported as above average

Current information on rice.

Italy The weather of July was generally favourable to the crop In North Italy heavy rain fell in the second half of the month and assisted crop growth

United States The condition of the rice crops on 1 August was 85,8 per cent of the normal and the indicated production is 22,700,000 centals (50,500,000 bushels) against 21,075,000 centals (46,833,000 bushels) last year and a five-year average of 18,154,000 centals (40,343,000 bushels) The area for harvest returned on 1 July was 1,003,000 acres in comparison with a harvested area of 935,000 acres in 1936 and an average of 857,000 acres The increase in California is 14,000 acres over last year and in Texas and Arkansas together the estimated increase is 54,000 acres. No change in the acreage from a year ago is indicated in Louisiana

Stands in Louisiana ranged from fair to good at the end of June but they were for the most part below average because of dry conditions prevailing at seeding time. Fields in some parts of the Louisiana rice belt were menaced by salt water and some damage was done by brackish water Some of the early planted rice was heading The crop was reported to be making favourable progress in Arkansas and Texas. In California, the rice crop made a late start but progress later was excellent with irrigation water abundant; the growth was uniform and stands were good despite the somewhat late sowing

Taiwan Sowings in the seedlings beds are fairly well completed Growth is on an average scale.

India There was moderate rainfall in Bengal in the second half of July. Crops maintained good condition though more rain was required for the transplantation of winter paddy seedlings. Heavy rains fell in the east and north early in August.

Rain was general in Bihar but insufficient for sowings until early August. These was flood damage in Orissa.

Rainfall was general in the United Provinces and germination was good.

Weather in Assam was seasonable and crop prospects are fair.

Indo-China. The planting out of the second crop of rice was still for the most part in progress at the end of June in Tonkin and Annam, more or less advanced according to areas, in some cases retarded by drought in certain provinces of Tonkin (tenth month rice in Yên bay, Vinh yên and Phuc yên) and in South Annam (Phu-lat and Bink-Khè) The sowing of mountain rice was carried out in the provinces of Phu tho and Viétri in Tonkin. The planting out of between season rice, known as three month rice, was still in progress in the district of Bac giang in Tonkin. In the province of Phuc yén in Tonkin the area sown was larger than last year. The sowing of the tenth month crop was already completed in Annam. In Tonkin, in the only province where planting out was finished at the end of June (Langsan), the growth of 10th. month rice was reported to be good In Annam the rice of the first sowing suffered from drought in the centre and certain parts of the south (round Bông-sen). The growth of rice planted out was satisfactory in the low-lying rice fields and those irrigated in central Annam for 8th month rice In South Annam 6th month rice was advanced far enough to permit harvesting in July and the yield was reported as normal (10 centals or 22 bushels per acre), the tillering of 8th month rice was satisfactory In the extreme south of Annam the young plants recovered well on the whole and tillering was vigorous in the rice-fields planted out (in Tân Tai and Hô-Diêm particularly, the preparation for the 12th. month crop has already begun in places (Binh-Thuân) but was late elsewhere (Ninh Thuân) owing to lack of rain.

In Cochin-China, sowings, which had been retarded the previous month in the eastern provinces because of lack of rain, were resumed in June in some districts (Thu duc, Gova de Giandinh, Tân-ngu and most of Bienhoâ), those completed in low-lying areas have produced vigorous plants In the central and western provinces, the preparation of seed beds was in full swing, sowings had begun at the end of June in some parts and were even finished for floating rice in the provinces of Choudoc and Long xuyên In Cambodia, the sowing of the seed-beds had begun everywhere in June, but few of the rice fields were planted out at the end of the month.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area —

	1937 acres	1936 acres
Area harvested in May. -		
Wet paddy	2,267,500	2,334,200
Dry paddy	72,200	96,100
Area harvested from 1 January to 31 May -		
Wet paddy	4,296,700	4,153,700
Dry paddy	911,600	905,400
Area of standing crop at the end of May:-		
Wet paddy	3,637,200	3,897,200
Dry paddy	47,400	66,500

	1937 acres	1936 acres
Area harvested in June:—		
Wet paddy	1,962,300	2,073,000
Dry paddy	21,700	30,400
Area harvested from 1 January to 30 June:—		
Wet paddy	6,260,600	6,226,900
Dry paddy	936,000	935,800
Area of standing crop at the end of June —		
Wet paddy	1,992,200	2,084,600
Dry paddy	25,500	38,100

British Malaya: Ploughing began in May in satisfactory conditions in Kedah, Malacca, and Negri Sembilan, in Kelantan it was general on the dry paddy area and was beginning on some of the wet paddy lands.

Transplanting was in progress in some districts of Pahang.

In Kedah, Province Wellesley and Penang precipitation was above normal in May, in Kelantan and Pahang about normal and in most other districts below normal.

Egypt: Sowing of the rice (*sefi*) of the few remaining areas terminated by the early days of July, and the state of the growth is generally satisfactory, but shortage of the irrigation water at the tails of canals has caused harm to some crops more especially the late ones, resulting in abundant resowing. The operations going on are watering, draining, weeding, transplanting and manuring. Crop condition on 1 August was normal.

The irrigation water was adequate except at the tails of canals.

Hoppers were observed in some areas in Behera and Dakahlia provinces. They were treated before causing harm.

Work is being carried out in the preparation of the land and the sowing of rice (Nili) which was started by the second week of July. Early sowing still continues and the germination and growth in the areas sown are satisfactory.

Tanganyika: In Rufiji and Ulanga early rice was being harvested in May and a good crop was expected. In Dodoma output was very good. An excellent crop was being harvested in Tabora, a good crop in Nzega but in Ufipa flood damage has occurred. The crop has improved in Mavanza and Kivimba, where it benefited from the heavy rains in mid-May.

In Iringa where rice was reintroduced last year, it was doing well. Heavy yields were reported from Tukuya and record crops were also being harvested in Tundwur.

Current information on potatoes.

Germany: The rain that fell during the first and third decade of July assisted the growth of truck crops. The crop condition of late potatoes was considerably improved compared with previous months and with July of last year, which was regarded as a record year of production.

Belgium: Potatoes remained irregular. Many fields have been attacked by *Phytoptora*.

Denmark: Favoured by rain, potatoes have grown well. Their crop condition has improved.

Irish Free State: The weather in July was favourable for the potato crops and growth and development were satisfactory. Very little damage from weather conditions resulted.

The acreage shows little difference from last year and present indications are that yields will be up to average. Some improvement over last year is anticipated but definite information is not yet available.

Greece: Thanks to the rains in July, condition of potatoes is good and production, especially of the early crop, is expected to be very satisfactory.

Hungary: The lifting of early varieties of potatoes is being carried out. Owing to the fine weather, the growth of late varieties has made good progress. The tops of this crop are vigorous and of good appearance. The tubers are very numerous, large and well developed.

Italy: Potatoes, whose crop condition was on the whole good at the end of June, suffered attacks of peronospora during the first fortnight of July. At the end of the month however production was stil estimated as good.

Latvia: According to reports of agricultural correspondents crop, condition was average in 18.3 per cent. of cases, above average in 80.2 and below in 1.5 per cent.

Lithuania: Weather conditions in July were very favourable for the growth of potatoes which considerably improved in condition.

Potatoes.

COUNTRIES		AREA					CROP CONDITION †)								
		1937	1936	Average 1931 to 1935	% 1937		1-VIII-1937			1-VII-1937			1-VIII-1936		
		1,000 acres			1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	s)	...	332	548	...	...	2.7	—	—	2.7	—	—	2.7	—	—
	t)	...	6,569	6,504	...	...	2.4	—	—	2.7	—	—	2.5	—	—
Austria		...	519	496	...	...	1.9	—	—	2.2	—	—	2.3	—	—
Belgium		392	396	413	99.2	95.1	—	—	—	—	f)	—	—	—	—
Bulgaria		43	35	35	121.2	122.7	—	—	—	—	—	—	—	—	—
Denmark		...	186	179	...	...	—	—	98	—	—	—	—	—	97
Estonia		...	183	172	...	...	—	—	95	—	—	—	—	—	87
Finland		230	215	197	107.0	116.7	—	—	—	—	—	—	—	—	—
France		3,460	3,465	3,460	99.9	100.0	—	—	—	68	—	—	—	—	—
Italy		962	964	1,004	99.8	95.8	—	—	—	—	—	—	—	—	—
Hungary		731	733	715	99.7	102.2	—	—	—	—	—	—	—	—	—
Lithuania		445	442	435	100.6	102.3	133	—	—	120	—	—	123	—	—
Luxemburg		41	41	41	100.0	100.9	2.9	—	—	2.9	—	—	2.2	—	—
Norway		...	127	120	...	...	102	—	—	102	—	—	104	—	—
Netherlands	m)	275	274	318	100.2	86.3	—	—	—	—	—	1) 67	—	—	1) 70
	n)	61	48	66	127.2	93.5	—	—	—	—	1) 70	—	—	—	1) 65
Poland		...	7,150	6,821	...	...	—	—	—	1) 3.4	—	—	2) 3.5	—	—
Portugal		...	...	79	...	...	—	—	—	—	—	—	—	—	—
United Kingdom:															
Engl. and Wales		455	457	484	99.7	94.0	—	—	—	—	—	—	—	—	—
Scotland		135	133	140	101.5	96.3	—	—	—	—	—	—	—	—	—
Sweden		...	330	328	...	...	2) 105	—	—	—	—	—	2) 105	—	—
Switzerland		121	117	114	103.4	105.7	84	—	—	82	—	—	—	63	—
Czechoslovakia		1,912	1,876	1,824	101.9	104.8	—	—	—	2.5	—	—	—	—	—
Canada		501	496	543	100.9	92.2	—	—	92	—	—	94	—	—	81
United States		3,224	3,058	3,513	105.4	91.8	81.3	—	—	—	—	83.3	—	—	59.8
Algeria	s)	18	17	20	105.3	89.7	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereal tables and note on page 573. — *a)* Above the average. — *b)* Average. — *c)* Below the average. — *m)* For consumption. — *n)* For factories. — *s)* Early potatoes. — *t)* Late potatoes. — 1) At the middle of the month. — 2) At the middle of the preceding month

Luxemburg: The complete lack of rain and extraordinary dryness during the whole of July has affected adversely the growth of potatoes and root crops as a whole.

Netherlands: At the end of the 2nd decade of July the condition of potatoes for food was quite good, in every case better than the previous month but nevertheles the yield in the fields harvested early was below the forecasts. A fair amount of disease was reported.

Seed-potatoes yielded a good crop. Some damage was done by *Phytoplora.*

Production of potatoes.

COUNTRIES	British units			American units			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand bushels				
Finland	27,937	29,158	24 919	46,561	48,596	41.531	95.8	112,1
Hungary	55,701	54,042	36,914	92,834	90,068	61,522	103 1	150,9
Luxemburg	3,806	4 411	4,170	6,343	7,352	6,950	86.3	91,3
Netherlands	56,769	55 260	66,669	94,613	92,099	111,113	102.7	85,2
Switzerland	17,970	12,521	16,580	29,949	20,868	27,633	143.5	108.4
United States	241,800	197,998	227,441	403,000	329,997	379,068	122.1	106.3

Poland: The crop condition of potatoes on 15 July was mostly above average. The best reports came from the provinces of Kielce, Silesia and Cracow; the worst report however came from the provinces of Stanislawow and Tarnopol.

Portugal: The crop condition of potatoes was variable: it was excellent in the irrigated areas but below average in the high and unirrigated areas, where yields are consequently forecast lower than last month.

United Kingdom: The wet, stormy weather that prevailed in the first fortnight of July, followed by a cool, dry spell was beneficial to the growth of potatoes. Both early and main crop potatoes promise an average yield in England and Wales. Very little disease was reported. In Scotland condition was good, and in Northern Ireland progress was fair despite the late planting of the main crop. Acreage has dropped this year in England and Wales, being 455,100 compared with 465,600 last year and an average of 484,100 for 1931-35.

In Scotland the acreage is 135,000 compared with 133,000 last year and an average of 140,150 in 1931-35.

Sweden: In spite of the lack of rain, which had retarded growth, and the damage done by greenfly, a normal crop of potatoes was expected.

Switzerland: Potatoes are still in an excellent state of growth. Diseases are very rare; but on the other hand, the effects of the dryness of the weather are gradually becoming noticeable, particularly in the lighter soils; in some areas damage due to white worms is reported. To judge from the yields of early potatoes, a good crop may be expected on the whole.

United States: Production of potatoes indicated by condition on 1 August will be 242 million centals (403 million bushels). If these prospects are realized, it will be the fifth largest crop on record and will exceed last year's outturn by more than 20 per cent. though the acreage is only 5 per cent. larger.

While planting of the late crop was delayed somewhat in many northern States on account of a wet, backward season, these weather conditions were generally ideal for the growing crop. Potato vines were generally heavy and growing vigorously in most of the important northern areas from Maine to the Pacific coast. In the North Central States, some late planted seed has rotted in the ground because of the heavy June rains.

Algeria: The planting of spring-summer potatoes was completed under good conditions. At the end of July, crop condition was considered average, and a rather better outturn than last year was anticipated.

General review of the crop condition of sugar-beet.

During the second fortnight of July, weather conditions were very variable in most of the European sugar-beet producing countries, variable not only in periods but also in districts. On the whole, the temperature fell a little towards the end of July in central Europe and there was plenty of rain, which was very beneficial to the sugar-beet crop. In western Europe the weather was warmer and fairly favourable to the growth of the roots. The plants also are very well grown in some cases, especially in the fields sown early, while in those sown later growth is occasionally uneven. This year some prevalence of greenfly was reported in many places but they did not find favourable weather conditions when they began to spread further. In eastern Europe and the Balkan countries the crop condition of sugar-beet at the end of July was regarded as promising good yields; only in Bulgaria have beets suffered from drought.

Sugar beet.

COUNTRIES	Crop condition †)								
	1st August, 1937			1st July, 1937			1st August, 1936		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	2.4	—	—	2.7	—	—	2.4	—	—
Austria	2.2	—	—	2.7	—	—	2.0	—	—
Belgium	—	—	—	—	f)	—	—	—	—
Denmark	—	—	98	—	—	1) 97	—	—	99
Scotland	—	—	—	—	f)	—	—	—	—
France	—	—	—	—	67	—	—	—	—
Lithuania	113	—	—	103	—	—	116	—	—
Netherlands	—	—	2) 67	—	2) 65	—	2) 73	—	—
Poland	2) 3.1	—	—	—	—	2) 2.8	2) 3.4	—	—
Sweden	2) 103	—	—	—	—	—	2) 113	—	—
Switzerland	78	—	—	84	—	—	89	—	—
Czechoslovakia	...	...	...	2.4	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 573. — 1) At middle of the month. — 2) At middle of the preceding month.

During the first fortnight of August the earlier weather conditions continued, to the ever increasing benefit of the sugar beet, whose weight and sugar content increased. The attacks of insect pests reported in some areas were checked and in very many cases stopped altogether.

Throughout Germany the sugar-beet crops benefited during the first fortnight of August from weather conditions very favourable for their growth. The rains of the second fortnight of July were succeeded by hotter, calm days which ensured a normal development of the roots. In the whole region between Halle and Brunswick, which is so important for sugar-beet production, the crop made excellent progress thanks to the weather being at last hot, which assisted the formation of the roots, increased their sugar content and checked the growth of foliage; the crop condition is not so good west of Halle where the soil was too dry. In the other areas of Germany also, the situation of the beets was very satisfactory, except in the centre of Hannover and in South Germany where drought had impeded the regular growth of plants.

The beet crops in France had a very satisfactory appearance, despite the drought (according to the enquiry of the *Comité central des fabricants de sucre* the area under the crop this year is estimated at 568,500 acres against 553,600 acres last year).

In the United Kingdom growth is making normal progress despite variable weather. In Poland the weather of the first half of August was much wetter

1937-38 Season. — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1937	1936	1931 1935	1937	1936	1931 1935	1937	1936	1931 1935	1937	1936	1931 1935
	oz.	oz.	oz.	oz.	oz.	oz	%	%	%	oz.	oz	oz.
5th. WEEK OF JULY.												
Netherlands	9.3	11.3	1) 9.9	—	—	—	11.5	12.4	1) 13.8	1.1	1.4	1) 1.1
Czecoslovakia	9.8	10.2	7.7	18.1	18.1	13,6	13.5	13.3	14.1	1.3	1.4	1.1
1st. WEEK OF AUGUST.												
Belgium	6.7	10.0	2) 10.5	19.6	27.8	2) 22.9	12.1	11.2	2) 11.7	0.8	1.1	2) 1.3
Denmark	7.7	7.4	3) 7.1	14.1	15.6	3) 10.8	11.8	11.2	3) 12.9	0.9	0 8	3) 0.9
France	6.3	7.9	7.9	13.7	22.8	13.8	13.8	11.7	13.6	0.9	0.9	1.1
Poland	8.6	6 9	4) 7.3	11.4	11.9	4) 11.9	14.2	13.7	4) 14.0	1.2	0.9	4) 1.0
Czechoslovakia	11.3	11.6	8.9	17.7	18.6	13.9	14.9	13.5	14 8	1.7	1.6	1.2
2nd. WEEK OF AUGUST.												
Germany	11.4	11.5	9.6	20.9	20.1	15.4	13.9	13.9	14.6	1.6	1.6	1.4
Denmark	9.2	8.6	4) 7.5	15.2	15.5	4) 10.3	13.3	13.0	4) 13.4	1.2	1.1	4) 1.0
France	7.6	9.2	4) 9.0	14.1	23.7	4) 15.8	15.0	13.3	4) 13.9	1.1	1.2	4) 1.3
Netherlands	12.8	15.7	2) 17.2	—	—	—	14.9	13.9	2) 13.9	1.9	2.2	2) 2.4
Poland	10.4	9.2	2) 8.0	13.2	13.7	2) 11.1	15.3	14.1	2) 14.8	1.6	1.3	2) 1.2
Czechoslovakia	12.6	12.8	10.1	17.0	18.8	13.5	15.7	14.5	15.5	2.0	1.9	1.5
3rd. WEEK OF AUGUST.												
Germany	13.2	13.5	11.1	22.0	21.2	15.4	14.8	15.1	15.1	1.9	2.0	1.7
Denmark	11.3	10.5	3) 9.4	16.0	16.3	3) 11.9	13.2	13.9	3) 14.0	1.5	1.5	3) 1.3
France	9.7	10.7	10.8	18.8	23.8	15.5	14.9	14.0	14.5	1.4	1.5	1.5
Czechoslovakia	14.5	14.5	11.5	16.9	18.8	13.6	15.4	15.1	16.1	2.3	2.2	1.8

1) Year 1935. — 2) Average of two years. — 3) Average of four years. — 4) Average of three years.

than usual at first but later serene conditions repaired the damage caused by the July drought. Beet crops in Czechoslovakia also made good progress as a result of the warm, sunny days which followed a period of heavy rainfall. All the beet countries in Eastern Europe showed considerable improvement during the first half of August.

In all the countries of minor importance as beet producers which are not mentioned in this summary, beet crops have made progress since the end of July. A plentiful crop is also expected in the U. S. S. R.

In this and subsequent issues of the Crop Report, as in former years, a small table will be given showing the results of the weekly analyses of beet, the weight of the roots and the sugar content. The results of these analyses confirm that, in the countries which make them, the general condition of sugar-beet, if not excellent, is a fairly good, the roots well developed and the sugar content fairly high.

E. R.

Current information on sugar.

Belgium Sugar-beets have grown well

Denmark, The crop condition of sugar-beet was better than in the previous month. As a result of the favourable warm weather the roots have grown well

Irish Free State Weather conditions in July were favourable and crops made good growth The area under the crop is about the same as last year and yields are expected to be up to average

Hungary· Sugar-beets have greatly benefited from the rainfall The healthy and fresh foliage of this crop is so abundant that it almost completely covers the fields The roots are healthy and very well developed they have recovered from the damage caused by insects in certain districts

Italy During the first fortnight of July weather was mostly normal, but in the second fortnight it was very variable Rain, storm showers and hail fell frequently in southern and central Italy The crop condition of the sugar-beet is good and growth has been assisted by the abundant moisture

Netherlands At the end of the second decade of July the crop condition of sugar beet in treated fields was very good, but elsewhere the soil was too wet and condition was only fairly good

In Zeeland considerable attacks of lice were reported

Production of sugar beet.

COUNTRIES	BRITISH UNITS			AMERICAN UNITS			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand short tons			%	
Finland . . .	1,896	1,830	1,381	95	91	69	113.6	137.3
Hungary	22,660	24,790	19,624	1,133	1,239	981	91 4	115.5
Netherlands . . .	32,188	36,117	34,492	1,609	1,806	1,725	89 1	93.3
United States . .	184,000	180,560	173,720	9,200	9,028	8,686	101.9	105.9

Poland: The correspondents of the whole country, except in the southern districts of Silesia, reported the appearance of greenfly on sugar-beets.

United Kingdom: The wet, stormy weather that prevailed in the first fortnight of July followed by a cool, dry spell encouraged the growth of sugar-beet. Though the crop needs more sunshine, yields are expected to be average.

Sweden. In spite of the deficiency of rainfall, which had retarded growth, and the damage done by greenfly a normal crop of sugar-beet was expected.

U. S. S. R. The heavy rains that fell often in the main producing areas of sugar-beet (Ukraina, provinces of Kursk and Voronezh, and North Caucausus) were very favourable for the growth of crops, which promise an abundant outturn. In some areas there were complaints of insufficient field-work for the normal growth of the plants. This was due to the fact that the work of harvesting cereals had absorbed a large amount of labour.

Antigua: Harvesting was expected to continue until about the end of August. The crop has been a large one.

Barbados. In mid-July more rain was still wanted.

United States. The area of sugar-beet indicated for harvest on 1 July was 778,000 acres or about equal to the harvested area of 1936 and 2.6 per cent below the 1931-35 average which includes the record acreage of 1933. Good average yields are expected and the total outturn indicated by conditions on 1 August was 184,000,000 centals (9,200,000 short tons).

The Mountain States of Colorado, Wyoming, Utah, Montana and Idaho combined show an increase of 20,000 acres over the acreage harvested in 1936. On the other hand, this increase is more thanoffset by the decrease of 24,000 acres in the eastern territory and in the Great Lakes region. Nebraska shows an increase of 6 per cent in acreage, while the area for harvest in California is unchanged from that of last year.

The California crop progressed satisfactorily after a late start. Early fields were retarded by wet and cool weather. Stands in Colorado were generally good and the crop made satisfactory growth up to the end of June. The crop started late in Utah and stands are mostly fair. Irrigation water is in ample supply in most of the sugar-beet producing States.

According to the crop report of 1 July, the area of sugar-cane for sugar in Louisiana this year is 240,000 acres compared with 227,000 acres in 1936 and a 1931-1935 average of 207,000 acres, percentages, 105.7 and 115.9. Production of cane for grinding is expected to be about 90,240,000 centals (4,512,000 short tons) as compared with 97,080,000 centals (4,854,000 short tons) in 1936 and an average of 59,300,000 centals (2,965,000 short tons), percentages, 93.0 and 152.2. This outturn if realized would yield about 7,520,000 centals (376,000 short tons) of raw sugar.

Cold, wet weather in the spring, followed by drought in May, hindered somewhat the early development of the cane but on 1 July the crop was making very satisfactory progress after frequent showers accompanied by seasonal high temperatures that promoted rapid growth.

British Guiana: Weather in May was favourable. Both the autumn and spring crops are in satisfactory condition.

Production of cane-sugar.

COUNTRIES	1936-37 1)	1935-36	Average 1930-31 to 1934-35	1936-37 1)	1935-36	Average 1930-31 to 1934-35	% 1936-37	
	Thousand centals			Short tons			1935-36 = 100	Average = 100
AMERICA								
Antigua	672	476	387	33,600	23,811	19,327	141	174
Argentina	9,576	8,607	7,621	478,796	430,368	381,022	111	126
Barbados	2,851	2,895	2,133	142,534	144,737	106,633	98	134
Brazil	22,046	25,817	19,518	1,100,000	1,290,850	975,879	85	113
Cuba	67,491	57,982	56,306	3,374,490	2,900,000	2 815.256	116	120
Ecuador	408	406	439	20,400	20,300	21,943	101	93
United States (La.)	7,496	6,658	4,010	370,000	333,000	200 474	113	187
British Guiana	4,409	4,389	3,061	220,000	219,445	153,060	100	144
Jamaica	2,361	2,049	1,403	118,069	102,000	70,000	115	168
Martinique	1,102	1,101	1,023	60,000	55,040	51,146	100	108
Mexico	6,614	6,790	4,989	300,000	340,000	249,500	97	133
Peru	9,370	8,951	8,819	468,000	448,000	440 940	105	106
Puerto Rico	18,828	18,527	17,471	941,000	926,333	873,522	102	108
Dominican Republic	9,480	10,076	8,719	470,000	503,795	435,928	94	109
St Kitts	762	631	506	38.100	31 555	25 305	121	150
Trinidad	3,594	3,465	2,416	180,000	173,220	120,978	104	149
Venezuela	551	496	456	28,000	24,800	22,824	111	121
Total America	*167,611*	*159,316*	*139,277*	*8,342,989*	*7,967,254*	*6,963,737*	*105*	*120*
ASIA								
Taiwan	21,826	19,877	17,781	1,090,000	993,831	889,061	110	123
India 2)	150,461	132,340	98,202	7,522,963	6,616,893	4,910,030	114	153
Japan 3)	2,723	2,427	2,018	136,100	121,300	100,900	112	135
Java	31,355	13,060	34,550	1,567,742	653 000	1,727,486	240	91
Philippine Is 4)	27,778	24,471	23,579	1,390,000	1,220,000	1,178,937	114	118
Total Asia	*234 143*	*192,175*	*176,130*	*11,706,805*	*9,605,024*	*8,806,414*	*122*	*133*
AFRICA								
Egypt	3,044	2,903	3,220	152,200	145,100	161,020	105	94
Mauritius	6,621	6,184	4,729	331,000	309,000	236,400	107	140
Réunion	1,847	2,007	1,273	92,330	100,366	63,642	92	145
Union of South Africa	8,927	8,346	7,312	446,334	417,318	365,590	107	122
Total Africa	*20,439*	*19,440*	*16,534*	*1,021,864*	*971,784*	*826,652*	*105*	*124*
OCEANIA								
Australia	16,931	14,482	13,251	846,600	724,100	662,549	117	128
Hawaii	20,834	21,451	20,124	1,042.000	1,073,000	1,006,168	97	104
Fiji Is	3,219	2,932	2,369	161,000	147,000	118,447	110	136
Total Oceania	*40,984*	*38,865*	*35,744*	*2,049,600*	*1,944,100*	*1,787,164*	*105*	*115*
TOTALS	**463,177**	**409,796**	**367,685**	**23,121,258**	**20,488,162**	**18,383,967**	**113**	**126**

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1) Approximate data. — 2) Production of *gur*. — 3) Production of sugar (refined and raw) and molasses. — 4) Production of sugar and *panocha*.

The rainfall for June and July has exceeded the normal by 75 %; that for the year has exceeded the normal by 35 %. The canes for both the 1937 autumn and the 1938 spring crops appear to be satisfactory but slightly subnormal.

The sugar production for this year to July 17 amounted to 1,837,907 centals (91,894 short tons).

Trinidad: Heavy rains had fallen by mid-July.

Taiwan: The growth of the cane-sugar of the new plantations is continuing under normal conditions.

India: Rainfall was general in the United Provinces in the four weeks ending 7 August. Crop prospects are favourable. There was general precipitation also in the Punjab where crops are in average to good condition. Reports on Bihar and Orissa are similar.

Netherlands East Indies: At the beginning of July there was some rain but the weather was subsequently drier. Old plantings partly made good progress and in part their condition receded heavily. Condition of new plantings was satisfactory but in some cases the canes were over-developed. In places the effects of the excessive moisture that delayed planting were still felt. Disease has not been in excess of normal.

In the first half of August the east monsoon prevailed but in some localities there was heavy cloud. Condition of old plantings varied, low sugar content was reported. Condition of young plantings was generally satisfactory though here and there the effects of the wet planting season were visible. Top-borers and stem-borers as well as gummosis, yellow streak, rats and white lice, were reported (*Aneta*).

Indo-China: At the end of June, the growth of sugar-cane was good in Tonkin and fairly satisfactory in north and central Annam. The extraction of the sugar was finished in south Annam (Quang-ngai), in the extreme south-east of this state (Thanh-hoa), the growth of suckers was good.

Egypt: The crop of the sugar cane is growing satisfactorily and the formation of internodes is progressing in the early plantations and some of the main ones. Watering in general is continuing as well as hoeing and manuring the late crops. The crop condition on 1 August was satisfactory.

Mauritius: Harvesting had begun by mid-July.

Union of South Africa: The June sugar-cane condition averaged 11 per cent. below normal. The weather was dry and cold. Rain came to the rescue of the crops in the coastal area of Natal, where the cane has suffered severely from drought.

Current information on vines.

Germany: After the dry weather of June, the rains that fell in July assisted the growth of the vines and improved their condition in the vine-growing areas of the south. The appearance of mildew and cochylis was reported in some places but the damage done was of normal extent and not considerable.

The crop condition of vines on 1 August was 2.4 against 2.5 at the end of July and 2.1 on 1 August, 1930.

Bulgaria: In June anticryptogamic treatment was carried out several times. At the end of the month traces of peronospora had almost disappeared and the final pruning had been undertaken.

Thanks to these steps the grapes had a good appearance and promised a good crop.

Greece: Despite the damage done to vineyards by hail and cryptogamic diseases in June, the condition of vines during July was good especially in the south, where the yield is reported to be even higher than last year.

Hungary: The growth of the vines was greatly assisted by the fine, calm and rainy weather. The clusters are growing in a very satisfactory manner. The grapes of early varieties are of normal size and approach maturation, in fact the earliest varieties are already ripe. *Oidium* and mildew as well as the vine bee-moth appear here and there in the vine-growing areas, though they have generally been combatted successfully. The forecasts made towards the end of July are favourable, but too much moisture may reduce the forecasts in the different regions.

Italy· In the first fortnight of July the growth of vines was good· nevertheless the crop suffered attacks of peronospora and oïdium in some districts. The general situation during the second half of the north did not change, except in some provinces, especially Tuscany and Abruzzi, where hail fell. The picking of table grapes has begun.

Luxemburg The sunny and hot days of July had a good effect on the general condition of vines

The crop condition of vines was 3 6 on 1 August, as on 1 July, compared with 2 9 on 1 August, 1936

Portugal The crop condition of vines is good on the whole some attacks of *oidium* have not done noticeable damage Clusters are ripening well. Prospects at the end of July were satisfactory

Romania Though the vines had begun to feel the effects of the drought and some damage had been caused by hail, a normal production of good quality was expected.

Switzerland· Among the vineyards, the heat has greatly stimulated the growth of grapes and, if weather conditions remained good, an early vintage might be expected Crop prospects are quite good in German Switzerland In Valais also conditions have improved. But only poor yields are expected in the Cantons of Vaud, Neuchâtel and Geneva As a result of the treatment applied everywhere, cyptogamic diseases have made only a slight appearance in the vineyards, in some districts *oidium* has has been rather frequent In parts also there is reason to fear the damage done by *cochylis* Because of the poor yields expected in eastern Switzerland, only a poor average harvest is expected in the country as a whole

The crop condition of vines on 1 August was, in the system of the country, 60 against 62 on 1 July and 61 on 1 August last year.

Yugoslavia· Towards the end of June, vines suffered from scorching and hail. The frequent rains that fell in July caused the spread of peronospora even over the fruits, and still worsened the crop condition of vines almost everywhere except the area of Herzegovina where crop condition is still good Owing to these unfavourable conditions the quality of grapes this year is reported to be rather bad, but it is estimated that the vintage will be no worse than last year

United States The production of grapes in 1937, as indicated by the condition of the crop on 1 July, is the largest since 1928 The indicated total crop of 50,533,400 centals (2,526,670 short tons) is 32 per cent larger than the 1936 production of 38 320,200 centals (1,916,460 short tons) and 23 per cent above the 1931 35 average of 41,047,900 centals (2,052,390 short tons)

The crop in California developed under favourable conditions in June and indications point to a production for this State of 44,380,000 centals (2,219,000 short tons) of all grapes compared with 34,280,000 centals (1,714,000 short tons) in 1936 and with the five-year average of 38,200,000 centals (1,760,000 short tons). The condition of wine grapes declined slightly from that of 1 June but good prospects were reported in nearly all producing areas. Condition of table grapes remained unchanged from that of 1 June with favourable prospects in the important producing sections of the San Joaquin Valley Raisin grape varieties are relatively later than in most seasons but production is expected to be the largest since 1928. Grape prospects in New York, Pennsylvania and Michigan are below average but indications point to a large crop in Ohio and to above average crops in Missouri and Arkansas.

Prospective supplies are large but indications point to a better demand for grapes for all purposes Stocks are very small at present. Wine consumption apparently is still on the increase and it appears that present stocks of wine are about a fifth smaller than those of a year ago.

Palestine: Conditions in July were very favourable for vines. Some slight attachs of mildew on the clusters were reported, but the crop condition was considered normal.

Algeria: July was marked by a very high temperature, an absence of rain, and with violent winds. The growth of the vines was good, but at the end of the month they were beginning to suffer from lack of water, and scorching on leaves and grapes was reported. Vintage will be 15 to 20 days earlier than last year, and a higher production than in 1936 is expected, though the area is about the same.

French Morocco: Vines in July suffered from drought, very high temperatures and hot winds – sciroceo and chergui – which blew with particular frequency and violence during the month These weather conditions prevented the growth of cryptogamic diseases, mildew was absent and the attacks of *oidium* which began to be dangerous in some areas were checked On the other hand the heat scorched many clusters and the drought prevented the growth of the clusters and reduced the size of grapes. Crop conditions which were previously poor seem to be considerably reduced, and if the drought persists the quality will be also affected

Tunisia The rather high temperature of July caused an early ripening of grapes, and the chasselas appeared on the market 15 days early The crop was reported as average in the north (Bizerta district), where it was somewhat reduced by a late attack of *oidium*, in the central area (Tunis and Kef districts), the crop, which was reported as rather below average at the end of June, seemed likely to be reduced by the influence of the sciroceo in the south, the vintage begun at the end of July was reported as rather above average On the whole, production this year seems likely to be definitely below average and lower than last year, especially considering the reduction in acreage

Current information on olives.

Greece The rains in July were favourable.

Italy. In some provinces reports were confirmed of considerable shedding in the first half of July In the second fortnight the crop underwent little change in condition.

Portugal The flowering of olive-trees was abundant. The conditions under which fruit forming took place were good the lack of rain however and the excessive heat during part of July caused shedding of small fruit In some areas hopes of a good crop were abandoned On the whole at the end of July the situation might be regarded as average

Yugoslavia In the banovina of Primorje the crop appears to be very abundant.

United States The condition of the Californian olive crop on 1 July was 57 per cent of the normal, as it was at the same date last year, compared with a ten-year average condition of 68. The crop bloomed heavily in most localities but the set of fruit was irregular.

Palestine: Conditions in July were very favourable for olive trees

Algeria July was marked by a very high temperature, without rain, with violent winds. Considerable shedding was reported among the olive-trees in certain parts of the province of Constantine (Vabylie and Miliana), but, on the whole, damage was very small. At the end of July crop condition was considered good, being 90 in the system of the country, a better crop than last year was anticipated.

French Morocco Olives have suffered from drought, with very high temperatures and hot scirocco and " chergises " winds, which blew with great frequency and violence during July. Crop chances seemed to be diminished.

Tunisia The months of June and July were marked by an almost total lack of rain, and moderate temperatures, rather below average, in June but fairly high in July, with some periods of scirocco. In the South (Sfax and Susa), the crop was reported at the end of July as average, poor or *nil* according to whether the olive-trees have been treated or not, heavy falls of leaves occurred. The olive blow-fly did little damage and the " *dacus* " was not noticed. In the control area (Tunis and Kef), shedding rather reduced a crop which was reported as satisfactory; in the north, appearances were fairly good or good according to locality. On the whole, the 1937-1938 crop appeared likely to be rather below average.

Current information on flax.

Belgium Yields appear good.

Bulgaria Owing to the encouragement of the government, the area of flax this year was greatly increased.

Weather conditions in July were very favourable for the growth of flax, whose crop condition at the end of the month was very good.

A very good crop is expected this year.

According to the most recent estimate, production is about 24,800 centals against 14,100 in 1936 and 4,450 on the average of the five years ending 1935, percentages 175.4 and 556.1. For linseed the corresponding figures are as follows 52,400 centals, 41,900 and 10,400, percentages, 124.9 and 502.9.

Irish Free State Weather conditions in July were favourable for the growth of crops. The acreage is about the same as last year and yields are expected to be up to average.

Hungary The harvest of flax for fibre was completed normally. The yield is poor but the quality is very satisfactory. The threshing of flax grown mainly for linseed is already finished for the most part. The grains are mostly large, full and healthy.

Latvia According to agricultural correspondents, crop condition of flax was average in 44.8 per cent of the cases, above average in 41.5 and below average in 13.7 per cent.

Lithuania Weather conditions in July were very favourable for the growth of flax.

Netherlands Crop condition at the end of the second decade of July was somewhat better but in the north and still more in the southwest, where the stand was too dense, harvesting had to be begun early.

According to the most recent estimate, production of fibre this year will about 29,277,000 lb. against 27,137,000 lb. in 1936 and 10,473,000 lb. on the average of the five years ending 1935, percentages, 107.9 and 279.5.

U. S. S. R. Towards the end of July, the lifting of flax was being carried out already in some areas. Crop forecasts are good. The crop situation is particularly good in the eastern part of the European territory, where rain assisted the growth of the plants. Also in the Leningrad area flax finds favourable conditions. Forecasts are excellent also in some districts in the northern area.

Area and crop condition of flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)								
	1937	1936	Average 1931 to 1935	% 1937		1-VIII-1937			1-VII-1937			1-VIII-1936		
	1,000 acres			1936 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria	...	6	5	..	...	2 3	—	—	2 4	—	—	2 5	—	—
Belgium	70	72	33	96 9	211 3	—	—	—	e)	—	—	—	—	—
Bulgaria	10	6	2	161 7	407 9	—	—	—	—	—	—	—	—	—
Estonia	...	70	50	...	..	108	—	—	—	—	—	—	—	99
Finland 1)	9	11	11	87 4	87 0	—	—	—	—	—	—	—	—	—
Hungary (a)	10	9	2) 7	112 5	136 2	—	—	—	—	—	—	—	—	—
Hungary (b)	15	15	2) 27	103 4	55 5	—	—	—	—	—	—	—	—	—
Italy	25	20	9	126 2	271.1	—	—	—	—	—	—	—	—	—
Lithuania 1)	218	208	145	105 0	150 7	120	—	—	—	100	—	110	—	—
Netherlands	43	33	14	130 6	298 4	—	—	—	—	—	62	65	—	—
Poland	...	330	257			—	—	3) 2.6	—	—	3) 2 5	3) 3 4	—	—
Czechoslovakia	43	40	23	105 3	187 1	—	—	—	—	—	—	—	—	—
Canada	427	468	377	91 3	113 1	—	—	28	—	—	44	—	—	45
United States	1,081	1,180	1,770	91 6	61 1	—	—	68.1	—	—	73 7	—	—	31 6
India	3,594	3,457	3,230	104 0	111 3	—	—	—	—	—	—	—	—	—
Egypt	7	6	4	109 1	176 5	—	—	—	—	—	—	—	—	—
French Morocco	...	43	49	..	..	—	—	—	—	—	—	—	—	—

†) See explanation of the various systems, page 573 — *a*) Crops mainly for fibre production — *b*) Crops mainly for seed production — 1) Flax and hemp — 2) Average 1934 and 1935 — 3) Middle of previous month

On 20 July the flax was lifted over an area of 715 000 acres, against 1,400,000 acres on the corresponding date last year

Argentina (Telegram of 19 August) The flax crops in a large part of the country are suffering from drought In the Province of Santa Fé, Cordoba and in the Pampa field work is late and the germination of the first sowings is slow Losses are expected to occur in Cordoba In the Province of Buenos Aires the crop situation varies from average to good while in Entre Rios it is considered normal.

United States According to the most recent estimate, the production of linseed this year will be about 4,488,000 centals (8,014,000 bushels) against 3,308,000 centals (5,908,000 bushels) in 1936 and 5,639,000 centals (10,070,000 bushels) on the average of the five years ending 1935, percentages, 135 6 and 79 6.

French Morocco According to the preliminary estimate, production of linseed this year will be about 145,500 centals (259,800 bushels) against 211,700 (378,000) in 1936 and 223,500 (399,100) on the average of the five years ending 1935, percentages, 68 7 and 65 1.

Current information on cotton.

Greece. Weather conditions in July were favourable for the growth of cotton, a very good production is expected this year.

Italy Cotton, especially in unirrigated areas, suffered from drought in south Italy and Sicily during the first fortnight of July In the vast areas of the province of Caltanisetta the plants suffered attacks of the cotton greenfly. These attacks were effectively combatted in the second fortnight of July.

Yugoslavia The large extension of area and the favourable weather in July in the south of old Serbia lead to expectations of a large crop.

U. S. S. R. During July and the first fortnight of August the weather in central Asia was mainly calm and hot and favoured the growth of cotton At the beginning of July cotton was at the stage of flowering in central Asia and Azerbaizhan. By the second fortnight of July flowering had become general, and was 5 to 7 days earlier than last year

Field and irrigation works in Central Asia were completed considerably later than the date fixed by the plan In the first decade of August, the opening of the bolls had begun in Tadzhikistan. Crop forecasts are still good

In some areas of central Asia, there were complaints of a heavier attack of insect pests than last year

United States During the week ending 14 July temperatures for the most part were moderate in the Cotton Belt and there were rather widespread showers. In general, weather continued satisfactory, and cotton made good progress, with conditions favourable for holding the weevil in check in most sections, except for parts of the southwest.

In Texas plants fruited rapidly and bloomed well in the northern part of the State, although frequent rains did some damage to staple and favoured weevil activity in southern sections.

In Oklahoma progress and conditions continued fair to very good, except for grasshopper damage in some western counties.

In central and eastern portions of the belt weather was generally favourable, and the crop made good advance.

Bolls were forming in central South Carolina, and were blooming well in the northern portion of the Central Belt.

During the week ending 21 July weather was generally favourable Temperatures were mostly above normal and there were widespread showers in the central and eastern portions which were beneficial in many localities, though the western rainfale was mostly light

In Texas the progress and condition of early planted cotton ranged from fair to good with plants fruiting well into the north Late-planted cotton was, however, only fair and locally poor. Intermittent rains damaged staple in some sections of the south, where picking was general In Oklahoma crop progress was good except in the extreme west, where it was only fair owing to dryness. Grasshoppers and some shedding were reported in southern districts.

In the Central and Eastern States crop progress was good to excellent, though growth was at the expense of fruit, being too rank in some wet areas.

During the week ending 28 July the cotton crop generally made good advance in virtually all the belt, and the weather was generally favourable for reducing weevil activity except in some local parts of the central and eastern portions where continued moisture favoured insects.

In Texas crop progress and condition were generally good; plants squared and bloomed freely in the northern half and the crop matured rapidly in the southern half, while excellent progress was made with the picking and the ginning of the crop in the extreme south. In Oklahoma the crop made fair to good advance, and the condition is good except in the north-west. In the central belt progress and condition ranged from good to excellent except locally where growth was too rank, while there were scattered reports of light shedding.

In the eastern part of the belt the crop generally made good advance, plants blooming and forming bolls rapidly.

During the week ending 4 August, temperatures ranged from a little below normal in the east to decidely above normal in western portions of the Cotton Belt. Widespread substantial rains occurred in eastern sections but elsewhere weather was mostly fair with little or no precipitation. Most stations in the central and western States reported an entirely rainless week.

In Texas progress and condition in general continued good, though poor to only fair locally in west central and north central portions. The crop matured rapidly in the south, and was in all stages of development in the northern half of the State, where some local picking began. Picking made rapid progress in the south.

In Oklahoma progress and condition were mostly fair to good, though poor with some shedding in the western portion of the State

In the central States of the belt, conditions were generally favourable, and progress continued mostly good to excellent except for a few localities in the northern districts, where there were complaints of rank, sappy growth at the expense of fruit. Weevil was generally inactive in the central States, and bolls developed favourably in the northern limits In Central Mississippi the first bale was reported several days earlier than last year.

In the eastern belt conditions were less favourable, and rains in southern Georgia, the Carolinas, and southeastern Virginia favoured weevil activity. Progress in general was only fair because of cloudy, showery weather, and too rank growth with some shedding was reported. Bolls were beginning to open as far north as the coastal plains of South Carolina.

Warm dry weather was needed in the eastern belt.

In the report for the week ending 11 August it was stated that temperatures were abnormally high in the west and northwest and moderately above normal in other sections Rainfall was mostly light to moderate in the form of local showers, with very little in the western portion. In the eastern and central districts progress during the week continued mostly favourable, but in the west in the absence of material moisture, together with the high temperatures, it has becomeun favourable over considerable areas.

In Texas progress is still fair to good in most places though considerable deterioration is now reported in some northern districts due to the coutinued dryness, while there is much shedding and premature opening in the northern half ot the State Substantial rains are needed badly. Picking and ginning made good advances, however.

In Oaklahoma progress was still mostly good in the east, but only fair in the central portions, with plants beginning to suffer, and more or less shedding, while it was only poor to very poor in the west Some local ginning is reported.

In the central States progress continues favourable with weevil relatively inactive. Arkansas was too dry in some hill sections, but otherwise development was mostly good to excellent.

In the eastern States general progress has continued good, except for poor to only fair progress in a few localities. More sunshine would be helpful in much of this area.

According to a telegram received on 18 August the crop was hampered by heavy rains in the southeast in the following week and by drought in the west, conditions were mostly satisfactory in central parts.

Summary of Government cotton reports, by cotton season.

	Provisional estimates for dates indicated 1937/38	Final estimates		Percent. 1937/38	
		1936/37	Average 1931/32 to 1935/36	1936/37 = 100	Aver. = 100
Report referred to 1 July					
Area in cultivation (acres)	34,192,000	30,960,000	34,382,000	110.4	99.4
Report referred to 1 August					
Area left for harvest (acres)	1) 33,429,000	2) 30,028,000	2) 31,697,000	111.3	105.5
Crop condition (per cent of normal)	81.3	72.3	3) 68.8	—	—
Production 4)	15,593,000	12,399,000	12,684,000	125.8	122.9
Yield of lint per acre, in lb	223.3	197.6	3) 179.5	113.0	124.4
Cotton ginned to 1 August 5)	143,000	41,130	88,771	347.7	161.1
Cotton ginned to 16 August 5)	515,000	208,000	294,690	247.6	174.8

1) Area in cultivation 1 July less the ten year average abandonment — 2) Area actually harvested — 3) Ten year (1926-35) average. — 4) In bales of 478 lb. net weight and exclusive of linters. — 5) In running bales, counting round bales as half bales and exclusive of linters

The report on conditions on 1 August (*see* Table above) indicates a crop of 74,534,000 centals (15,593,000 bales). The indicated yield per acre for the whole country is 223.3 lb. which, if realized, will be the highest recorded.

Montserrat: As planting was advanced a month picking started correspondingly earlier. It was expected that the long drought would result in a reduced crop.

India: Based upon reports on the condition of the cotton crop at the end of July or early August, the area sown is at present estimated by the Government, in their first all-India cotton forecast for 1937-38 at 15,225,000 acres, as compared with 15,259,000 acres (revised) at the same period of last year, and with a yearly average of 13,571,000 acres during the five-year period ending with 1935-36; percentages: 99.8 and 112.2. These figures exclude those of Burma.

The first estimate for the Punjab places the cotton area at 3,576,000 acres. Compared with last year when there was an acreage at this period of 3,305,000, this year's figure is 8.2 per cent. larger, while, compared with the average of the period 1931-32 to 1935-36 (2,329,000 acres) the increase is 53.6 per cent.

The area sown up to the end of July in Madras was estimated at 227,000 acres, of which nearly three-fourths consists of last year's crop left on the ground. The corresponding figures for the last three years were 286,300, 304,000 and 198,000 acres respectively.

Indo-China: The harvest of cotton, which was almost finished in the extreme south of Annam (Tanh-Hoa), gave poor results. In south Annam plants had recovered their vigour, following rain that fell in June, and new flowers had appeared.

Algeria: At the end of July, the crop condition of cotton, sown over 1,000 acres was 100 per cent. better than last year, and was considered average.

Egypt: The temperature rose during July and the weather conditions were favourable to the growth of the crop, flowering and formation of bolls. The vegetative growth ended in the early cultivations and most of the general ones in the south of the Delta and Upper Egypt, and the lower bolls began to mature. Early opening of bolls was observed in few plots.

The operations going on are watering in general, while hoeing for the late cultivations has been completed.

The state of the crop is satisfactory.

Demands for water increased, and, some areas were left unwatered in their turns Compensation turns of watering were given as far as possible.

The cotton area became free from the attack of cotton leaf-worm all over the country, except in limited patches in the late cultivations in Behera province, in which new egg-masses appeared and which are being picked up. The crop escaped the damages of this pest.

The result of examination of the bolls shows that the percentage of attack by the common and the pink boll-worms attained by the end of July about 44 per cent. in Ashmouny, Giza and Maarad; 3 per cent. in Sakel, as against 12 per cent. in. Ashmouny and Zagourah, 10 per cent. in Giza 7, 9 per cent. in Maarad and 6 per cent in Sakel, in the same period last year.

Hoppers appeared in few patches in Gherbia, Dakahlia and Behera provinces. They were treated by poisonous bait before causing harm to the cultivations

An attack of aphis was observed in Behera, Gharbia, Fayoum, Assiout and Girga provinces. It is being controlled by spraying with nicotine sulphate. The harm caused is insignificant.

Nyasaland: Buying was about to start in mid-July.

Uganda Weather was unfavourable to planting in the first three weeks of June in most of the Eastern Province but up to the end of that month total plantings in the province exceeded the corresponding figure of last year. In Buganda dry weather delayed planting in some areas and total area planted to the end of June was 20 per cent less than in the corresponding period of 1936. In Northern Province germination was generally good and subsequent progress of the crop was favourable, plantings to the end of June exceeded those to June 1936 by 130 per cent. In Western Province sufficient rain fell to enable planting to proceed normally. In Uganda as a whole there is no serious incidence of pests or diseases and prospects were encouraging

Tanganyika Planting continued in Arusha to the end of May. Record plantings were made in Moshi.

In Tanga Province a very good crop was expected. In the Rufizi district extensive flood-land cotton planting was taking place and in the Eastern Province as a whole the crop was very promising.

In the Mavanza district (Lake Province) picking was begun In the Kwimba district of the same province early cotton and that in low-lying districts was damaged by very heavy rain. In some parts of the Southern Province on the other hand, late-planted cotton was badly in need of rain

Current information on hemp.

Bulgaria: Owing to the increase in acreage and the favourable weather of July, hemp production this year is reported to be very high

According to the most recent estimate, production is about 68,000 centals against 55,900 in 1936 and 37,500 on the average of the five years ending 1935, percentages 121 8 and 181.2.

Hungary: Hemp is growing vigorously, and its appearance is good, the hemp fields are well filled and the crops are very high.

Poland: Crop condition in mid-July was 2.7 according to the system of the country against 2.6 in mid-June 1937 and 3.3 in mid-July 1936.

Current information on hops.

Belgium Hops have flowered normally and the fight against insects and diseases was actively waged

Hungary The heads of hops are well developed and are nearly ripe A good harvest is expected

United Kingdom The area under hops in England this year is 18,100 acres, a decrease of 1.2 per cent from the 18,300 acres of last year but an increase of 1 4 per cent on the 1931-35 average of 17,800 acres

The dull weather and cool nights have retarded the growth of the crop The bine is healthy and on the whole, fairly vigorous, but more sun and rain are needed to promote growth Attacks of aphis and downy mildew have been prevalent in most areas, particularly in Kent, but washing and powdering have been employed with satisfactory results The yield is expected to be below average

Yugoslavia. Weather conditions in July were on the whole very favourable to the growth of hops especially as excessive moisture caused, in the main producing areas, the spread of mildew

At the moment the production of hops is reported as rather poor, though naturally it still depends on the weather conditions of August

United States A production of 42,800,000 lb was indicated on 1 August compared with 23,310,000 lb last year and a 1931-35 average of 36,426,000 lb , percentages 183 6 and 117 5

Current information on tobacco.

Belgium The growth of tobacco was good

Bulgaria According to the most recent estimate, the area cultivated to tobacco this year is about 98,900 acres against 92,200 in 1936 and 68,800 on the average of the five years ending 1935, percentages, 107 3 and 143 6.

Greece According to information from the *League for the Protection of Greek Tobacco*, the acreage of tobacco this year will be slightly lower than last year. Moreover it is expected that the area that will be harvested will be still lower owing to the application of Law No. 523 on the "Regulation of tobacco growing", which requires the abandoning of poor quality or unsuccessful crops The work of transplanting and planting out was accomplished under fair conditions The damage done by rain and hail was not extensive According to the first unofficial estimates, the acreage this year is estimated to be 238,700 against 243,700 acres in 1936 and an average of 187,300 in 1931-35, percentages, 98 0 and 127.4.

According to the first very approximate estimates from the same source, the production of tobacco this year will be worse than last year, but better than the average of 1931-35

Hungary: The tobacco crop has greatly benefited from the rain that fell at the end of July. Towards the end of the month the plantations looked very well. The picking of the lower leaves of the tobacco crop has begun, and production is reported as good.

Yugoslavia Weather conditions in July were on the whole favourable for the growth of tobacco, and a good production is forecast, particularly in the districts of Herzegovina and Dalmatia.

The bad weather which occured at the beginning of August in Dalmatia did considerable damage to plantations, without, however, spoiling the good quality of the tobacco.

U. S. S. R.: In the main producing areas of tobacco, a good outturn is expected

United States: The 1937 tobacco crop, according to the August report, is estimated at 1,417,000,000 lb. as compared with 1,153,083,000 lb. in 1936 and the 1931-35 average of 1,266,355,000 lb, percentages 122.9 and 111 0

Indo-China: The harvest of tobacco in Annam, which was finished in June, yielded a very poor crop.

Japan: According to the most recent estimate, the area cultivated to tobacco this year is about 86,400 acres against 87,100 in 1936 and 85,700 on the average of the five years ending 1935; percentages, 99.1 and 100 7. The corresponding production this year will be about 137,216,000 lb against 142,353,000 lb. in 1936 and 145,813,000 lb on the average of the five years ending 1935; percentages, 96.4 and 94 1.

Algeria: At the end of July, the first tobacco crops planted out were mostly in flower. Growth was often hampered by drought, but at the end of the month the crop condition was still considered fairly good and a rather better yield than last year was anticipated.

Current information on other products.

Tea.

India In North India, seasonable weather prevailed during the latter half of June but crop prospects are only fair as a result of the severe drought in the early part of the year. In South India, heavy monsoon conditions prevailed during June and crop prospects are normal for the time of year.

In North India, statistics to the end of June recorded a decrease of 4,610,500 lb as compared with the outturn to the same date last year In South India, the outturn was 12 per cent. ahead of that to the same date last year.

Indo-China. At the end of June, the growth of tea was good in the province of Phu tho in Tonkin The crop was good in north Annam, where the picking of the leaves was still in progress at the end of June, in central Annam (Queng-Nam), on the pruned tea plants a decrease in the production of young shoots, due to the heat was reported.

Nyasaland. Pruning was well advanced in July but lack of rain had delayed the first flushes.

Coffee.

Brazil: According to the Departmento Nacional do Café, the total quantity of coffee eliminated from the market from 1931 to the end of July was 6,422 million pounds, of which 291 million were destroyed in the first month of the current season This accelerated rhythm of destruction will be continued in the next few months in view of this year's large crop The coffee available in Brazilian ports on 31 July 1937 amounted to 425 million pounds, of which 281 million were in the port of Santos

Haiti: Beneficial rains fell in July in the south. In the north and west, weather was dry. At the beginning of August the coffee crops gave promise of good yields.

Paraguay: The condition of coffee plantation in June was satisfactory.

Dominican Republic: Weather conditions in June were favourable for the coffee crop Forecasts of a good outturn are confirmed.

Indo-China Drought in June did some damage to the young coffee plantations in Annam and flowering was not abundant.

French Equatorial Africa: The weather in June was generally favourable save in the Middle Congo, where high temperatures caused fairly appreciable damage. The most recent estimate of production is 4,400,000 lb against 3,000,000 lb. in 1936-37 The area at present in bearing is 25,000 acres, about one-third of the total.

Ivory Coast In June coffee plantations were benefiting from the rainy season which was just beginning. The crop condition of coffee plants on 1 July was regarded as on the whole good

Kenya Weather conditions in July were normal and on the whole favourable to coffee plantations, where crop condition in August was considered good.

Madagascar The many floods that occurred in the present season have done damage, which is as much as 12 per cent of the crop. But in spite of that, the production of coffee this year is abundant

Sierra Leone In June weather conditions were on the whole favourable for the coffee plantations and their crop condition was regarded as good.

Tanganyika In May picking started in the lower altitudes in Arusha, where the native crop was expected to be more than double that of last season. In Moshi despite damage from flood and wash, a normal crop was still expected

New Caledonia In July, the crop condition of coffee plants was excellent The crop of the Arabica variety gives high yields

Groundnuts.

Indo-China: The crop of groundnuts was normal in the province of Bac giang in Tonkin (9 to 10 centals of dry shells an acre). The yield was the same in the north of Annam in the area of the two rivers Jông-ma and Jông-la, the second crop planted in central Annam (Quang-nam) presented a good appearance at the end of June and promised a good production; in south Annam (Quang-ngai, Binh-Dinh), yields were rather poor; sowings completed in May in the extreme south (Binh-Thuân) sprouted regularly. In Cambodia, the crop planted on old alluvial land in the rainy season (Udong area), was suffering at the end of June from lack of rain.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details of the groundnut area.

	1937 acres	1936 acres
Area harvested in May	32.900	35.600
Area harvested from 1 January to 31 May	182.600	181.900
Area of standing crop at the end of May	183 100	174.700
Area harvested in June	70.900	61.000
Area harvested from 1 January to 30 June	254.000	243.200
Area of standing crop at the end of June	160.100	168.000

French West Africa: The exportable surplus of groundnuts in the shell from the last crop is now estimated at between 11,685,000 and 12,125,000 centals, which would correspond respectively to a total production of from 14,110,000 to 14,330,000 centals, the largest ever recorded in Senegal, exceeding by about 40 per cent. that of 1936 and the 1931-35 average. The average is, however, low since it includes the exceptionally small crop of 1931.

Egypt: Growth of groundnuts is progressing and flowering has become general. The early cultivations have begun to form fruits, and watering and hoeing are being carried out. The crop is normal.

Tanganyika: Groundnuts were beginning to come on the markets in May in Dodoma, where an excellent crop was expected. In Kondoa the crop was still too wet for marketing. In Singida yields were good. Yields in Tabora were below average. Harvesting was begun in Mwanza and prospects were excellent in Maswa, but rain damage occurred in Kwimba and there was some delay in harvesting in Shinyanga. Record crops were harvested in Tundura.

Colza, mustard and sesame.

Netherlands: At the end of the second decade of July condition of colza was good to fairly good but unit-yields proved below expectations.

According to the most recent estimate, the production of colza this year will be about 115,000 centals (229,000 bushels) against 101,000 (203,000) in 1936 and 82,200 (164,000) on the average of the five years ending 1935, percentages, 113.2 and 139.5.

On 19 July condition of mustard was 68 according to the system of the country against 64 on 14 June 1937 and 68 on 13 July 1936.

Poland: Condition of winter colza according to the system of the country was 2.9 in mid-July, 2.8 in mid-June 1937 and 2.7 in mid-July 1936; that of spring colza was 2.6, 2.4 and 3.0 respectively.

Romania: In some areas where there were rains and it was possible to carry out cultivation, sowings had already begun at the beginning of August. In other areas they could not be made until the middle of the month.

According to the most recent estimate, the area cultivated to colza this year is about 138,000 acres against 228,000 in 1936 and 166,000 on the average of the five years ending 1935, percentages, 60.3 and 82.7. The corresponding production is estimated at about 617,300 centals (1,235,000 bushels) against 1,110,800 (2,222,000 and 617,200 (1,232,000), percentages, 55.6 and 100.2.

Indo-China: In Annam the harvest, which was in progress, promised to be good.

Japan. According to the most recent estimate, the area cultivated to colza this year is about 274,400 acres against 263,000 in 1936 and 210,300 on the average of the five years ending 1935, percentages, 104.3 and 130.5.

Palestine: At the end of July, the crop condition of sesame was excellent and a much better production than last year was anticipated.

Jute.

India: According to the preliminary forecast, the estimated area under jute in the four provinces of Bengal, Bihar, Orissa and Assam is 2,747,600 acres as compared with the corresponding estimate in 1936 of 2,504,900 and the final estimate of 2,822,400.

In Bengal, which cultivates more than three-quarters of the total acreage, there was a decrease of more than 3 per cent. as compared with the revised figures of 1936. Rainfall in February was sufficient for the preparatory tillage and for the sowing of the early crop in the lowland tracts of East Bengal. March and April were dry and sowings proceeded slowly in certain low lands of East and North Bengal with the usual soil moisture, but elsewhere the operation was practically suspended for a while Rainfall from the end of April and onwards facilitated sowings over large tracts of North and also in parts of East Bengal. Subsequent conditions were generally favourable for the growth and development except in some waterlogged tracts of East and North Bengal In West Bengal rains though late were helpful for sowings and the present outlook is promising.

With the exceptions noted above, the crop was generally reported as fair.

In Bihar the early part of the season was marked by lower than normal rainfall and conditions were not quite favourable in the important district of Purnea. Sowings, however, were normal and the condition of the crop was, on the whole, fair in June. In Orissa rainfall generally was above the normal and the condition of the crop was reported to be favourable. In Assam weather was generally unfavourable for cultivation and growth owing to drought in almost all the important jute-growing districts. There was some improvement later and prospects were reported to be satisfactory, on the whole, in June but the outturn was expected to be smaller

Current information on fodder crops.

Germany. Meadows, pastures and fodder crops in general which suffered from drought during the month of June were not able to recover their normal growth in July, for the rainfall was insufficient for their growth.

Belgium: The lack of rain during July caused some dryness, that has affected pastures.

Bulgaria: Crop condition in July was very good.

Denmark: The crop condition of fodder root crops improved compared with June Favoured by the hot, rainy weather the roots grew well, and these weather conditions prevented the spread of lice, which were increasing

The crop of hay was satisfactory in both quality and quantity, but the yield of hay is estimated as below average in the islands. In Jutland on the other hand it is rather high.

Estonia Conditions for the growth of grass were not favourable at the end of June and the drought checked growth in some places while in the first half of July, on the other hand, growth was hindered by floods in Pärnu and Viljandi

Irish Free State. Weather conditions during July were favourable to the development of all fodder crops. An intermittent rainfall during the first three weeks of the month, with temperatures slightly below normal, and a warm week at the close, suited the growth of all crops but harvesting appeared likely to be delayed a week.

The area of meadows is approximately the same as last year but yield and quality are better.

Finland: According to the latest estimates, the acreage of rotation meadows this year is estimated to be about 2,790,000 acres, as against 2,743,000 in 1936 and an average of 2,678,000 in 1931-35; percentages: 101.7 and 104,2. The corresponding production of hay is estimated to be about 78,264,000 centals (3,913,000 short tons), against 73,780,000 (3,689,000) in 1936 and an average 66,059,000 (3,303,000) in 1931-35; percentages; 106.1 and 118.5. The corresponding figures for permanent meadows are as follows: Acreages — 890,000; 939,000 and 1,016,000; percentages: 94.7 and 87.5. Pro-

The condition of fodder crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 August 1937			1 July 1937			1 August 1936		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
CLOVER:									
Germany	—	—	3.2	—	—	3.1	2.4	—	—
Austria 1)	2.4	—	—	2.4	—	—	1.9	—	—
Netherlands:									
red clover	2) 67	—	—	2) 74	—	—	2) 67	—	—
white clover	2) 74	—	—	2) 75	—	—	2) 74	—	—
Poland	—	—	2) 2.1	—	—	2) 2.2	2) 3.2	—	—
United States	85.8	—	—	84.6	—	—	—	—	61.1
ALFALFA:									
Germany	2.7	—	—	2.7	—	—	2.3	—	—
Austria	2.1	—	—	2.5	—	—	1.7	—	—
Netherlands	2) 66	—	—	2) 60	—	—	—	—	—
United States	—	—	74.6	—	—	80.6	—	—	52.8
MANGELS:									
Germany	2.5	—	—	2.8	—	—	2.4	—	—
Austria	2.2	—	—	2.6	—	—	2.1	—	—
Denmark	—	—	96	—	—	—	—	—	99
Netherlands	2) 70	—	—	—	—	—	2) 74	—	—
Switzerland	78	—	—	81	—	—	80	—	—
TEMPORARY MEADOWS:									
Austria 3)	2.3	—	—	2.2	—	—	1.6	—	—
Denmark	110	—	—	—	—	—	—	—	96
Estonia	101	—	—	—	—	—	106	—	—
Norway	113	—	—	110	—	—	—	—	85
Sweden	2) 118	—	—	—	—	—	2) 105	—	—
Switzerland	78	—	—	85	—	—	86	—	—
United States	80.8	—	—	82.0	—	—	—	—	57.5
PERMANENT MEADOWS:									
Germany:									
irrigated meadows	2.5	—	—	2.4	—	—	2.2	—	—
other meadows	2.9	—	—	2.6	—	—	2.4	—	—
Austria	2.3	—	—	2.2	—	—	1.7	—	—
Denmark	105	—	—	—	—	—	—	—	89
Estonia	104	—	—	—	—	—	125	—	—
Norway	108	—	—	107	—	—	—	—	82
Netherlands 4)	2) 75	—	—	2) 77	—	—	2) 71	—	—
Poland:									
ordinary meadows	—	—	2) 2.1	—	—	2) 2.1	—	—	2) 2.6
low meadows	—	—	2) 2.8	—	2) 3.0	—	—	—	2) 2.8
meadows improved	—	—	2) 2.8	—	2) 3.0	—	2) 3.4	—	—
Sweden	2) 107	—	—	—	—	—	2) 103	—	—
Switzerland	74	—	—	84	—	—	84	—	—
PASTURES:									
Germany	—	—	3.1	—	—	3.1	2.7	—	—
Austria	2.2	—	—	2.3	—	—	2.0	—	—
Denmark	—	—	94	—	—	—	—	—	91
Netherlands	2) 63	—	—	2) 75	—	—	2) 68	—	—
Poland	—	—	2) 2.0	—	—	2) 2.0	—	—	2) 2.5
Switzerland	79	—	—	84	—	—	73	—	—

a) Above the average. — *b)* Average. — *c)* Below the average. — *d)* Excellent — *e)* Good — *f)* Average — *g)* Bad — †) See explanation of the various systems on page 573. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Kleegrass. — 4) Meadows for hay

duction — 5,401,000 centals (270,000 short tons), 5,622,000 (281,000) and 6,735,000 (337,000); percentages: 96.1 and 80.2.

The acreage of fodder roots and tubers this year is estimated to be about 64,500 acres, against 59,700 in 1936 and an average of 61,300 in 1931-35; percentages. 108.1 and 105,2. The corresponding figures of turnips for fodder are 37,600; 39,000 and 42,900 acres; percentages: 96.2 and 87.5.

Hungary The second cutting of clover is everywhere harvested and the yield was very good The third cutting of alfalfa is in progress. A good yield is expected from this crop Fodder maize, assisted by the rain, presents a very satisfactory appearance The condition of mangels is good, and the foliage is so abundant that it almost completely covers the fields. The roots are healthy and are growing in very satisfactory conditions A good average yield is forecast The growth of different varieties of fodder grasses made good progress, a good crop may be anticipated. The second crop of permanent grass promises also a good yield. Following rain, pastures in general look well, growth is excellent and sufficient feed for livestock is provided.

Italy Weather was generally normal in the first half of July but very variable in the second half. Rain, accompanied by storms and hail, was heavy, particularly in continental Italy. In the islands weather was dry and temperature very high, fodder production is considered good or plentiful, according to district, on land that is sufficiently moist

Netherlands. At the end of the second decade of July the crop condition of mangels and of white and red clover was good, that of alfalfa had improved Grasses on the other hand had suffered from drought so that their crop condition was only satisfactory, and also the second crop of meadows was not well advanced, but the rain that fell in the last days of the month has done some good The production of hay of grass and clover was very abundant

Poland On 15 July the condition of fodder in both ordinary meadows and pastures continued to be bad, that of damp and improved meadows seemed better but nevertheless was below average

The first cutting of hay, according to 99 per cent of correspondents, was accomplished in favourable conditions

Towards the end of July began almost everywhere the second cutting

United Kingdom The weather during July was characterised by the prolonged absence of sunshine throughout the country Thunderstorms, with heavy rain, were frequent in the first half of the month, particularly in the north and east of England and the Midlands, while exceptionally heavy rain fell in the east of Scotland during the first week This rain in general was of great benefit to both pastures and root crops But the lack of sunshine, accompanied by low temperatures, that prevailed in the second half of July retarded haymaking And though in Scotland the last week was sunny, the dull, wet weather that preceded it delayed the ripening of the crops Grass in England and Wales was plentiful during the month, but towards the end would have benefited from further rain Turnips and swedes made good growth and looked vigorous at the end of July Mangels made fair progress but were needing more sun Both hay and root crops were growing well in Northern Ireland at the beginning of July.

The acreage of rotation meadows in England and Wales is 1,469,000 this year which is rather above average and is higher than last year (1,339,900) Yields are expected to be well above last year and the preceding ten-year average. The acreage of permanent meadows is approximately the same as usual at 4,671,000 acres. Yields are expected to be rather better than usual. In Scotland the acreage of rotation meadows for hay (rye-grass and clover) is 410,000 this year against 396,700 last year and 400,200 for the average of 1931-35. The acreage of rotation meadows not for hay is 1,030,000 against 1,033,400 last year and an average of 1,071,900 in 1931-35 The acreage of permanent meadows for hay in Scotland is higher this year at 184,000 whereas last year it was 170,300 and averaged 174,100 in 1931-35. The acreage of permanent meadows not for hay is 1,405,600, which is somewhat below last year and a little below average.

Mangels in England and Wales cover 206,800 acres this year, which is only 84.1 per cent. of last year's figure (246,000) and 83.7 per cent. of the 1931-35 average (247,200). In Scotland the acreage is a little higher (3,500). Turnips and swedes cover 440,100 acres in England and Wales. Last year it was 449,300 acres and in 1931-1935 averaged 554,900. This represents a drop of 20.7 per cent. from the average. In Scotland turnips and swedes cover 332,000 acres which is a drop from last year (345,900) and from the average of 1931-35 (353,500)

Sweden: In spite of the deficiency of rain, which had retarded growth, and the damage done by greenfly, a normal crop of mangels was expected.

Switzerland. The condition of rotation and permanent meadows became worse since the previous month. Many areas are suffering from dryness. The second cutting was carried out under ideal conditions. On the other hand, owing to the dry weather, the growth of the third crop is at present rather unsatisfactory. In the Alpine areas the growth of grasses has further improved, after the rain that fell at the end of July.

Canada. The first cut of alfalfa meadows is estimated at 30,400,000 centals (1,520,000 short tons) as compared with 26,320,000 centals (1,316,000 short tons) in 1936

United States The 1 July estimates of the areas for hay in 1937 and previous years are as follows

	1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
	(Thousand acres)				
Wild hay	12,546	10,694	11,797	117.3	106.3
All tame hay	55,773	57,055	55,891	97.8	99.8
Including					
Clover and timothy	19,674	22,010	22,535	89.4	87.3
Alfalfa	14,177	14,034	12,520	101.0	113.2

The production of wild hay indicated by condition on 1 August was 200,000,000 centals (10,000,000 short tons) as compared with 138,300,000 centals (6,915,000 short tons) in 1936 and a five-years average of 178,444,000 centals (8,922,000 short tons) The yield of tame hay was expected to be 1,498,000,000 centals (74,900,000 short tons) compared with 1,266,180,000 centals (63,309,000 short tons) in 1936 and an average of 1,356,848,000 centals (67,842,000 short tons)

The larger than usual hay crop indicated for 1937, plus the rather small carry-over on 1 May, will provide about the usual total supply. Rainy weather made harvesting difficult and probably lowered the quality of early cuttings in the Pacific Northwest and in some of the eastern States north of the Potomac and Ohio Rivers Indicated yields per acre are near average or better in most States

The acreage for hay is less than in 1936 in most of the northern States from New York to the Missouri River, much of the reduction resulting from drought and winter injury to clover stands. In most of the other States, the 1937 hay acreage equals or exceeds that of 1936.

The alfalfa hay acreage has continued to expand in most eastern and some western States, but has decreased in part of the maize belt because of damage from drought and freezing.

In the North Central States the clover stands were severely damaged by the drought of 1936 and the winter of 1936-37. In this region, the 1937 acreage of clover and timothy is only 79 per cent. of that harvested in 1936 and in many fields the clover was almost entirely killed leaving only timothy.

Algeria: At the end of July the crop was completely dried up and non-existent in pastures of rough grazing in some areas; in south Oran, they were, however, not quite so bad though poor. Early rains will be necessary everywhere to restore growth.

LIVESTOCK AND DERIVATIVES

Livestock in Lithuania.

Classification	June 1937	June 193
Horses	*549,700*	*546,880*
Colts under 1 year	40,920	38,890
Horses 1 year old and under 3	66,290	63,140
Horses 3 years old and above	442,490	444,850
Cattle	*1,163,000*	*1,148,500*
Calves under 1 year	170,750	170,200
Cattle 1 year old and above	218,740	215,500
Milk cows	773,510	762,800
Sheep	*1,288,500*	*1,275,400*
Sheep under 1 year old	767,740	762,000
Sheep 1 year old and above	520,760	513,400
Pigs	*1,183,530*	*1,210,000*
Pigs under 6 months old	798,700	833,600
Pigs 6 months old and above	384,830	376,400
Poultry:		
Hens and cocks (excluding chicks)	2,229,080	2,176,700
Geese	852,960	393 600

Livestock in the United Kingdom.

Statistics of the numbers of livestock in the United Kingdom in 1937 are now available, having recently been published by the Ministry of Agriculture and Fisheries.

In 1937 in England and Wales the changes in numbers of livestock were more noticeable than in 1936, when only sheep showed an increase. This year an increase was again shown by sheep (534,800 or 3.2 per cent.), and cattle as a whole increased by 73,700 (1.1 per cent.), but the total of dairy cattle was about 11,000 less. All classes of pigs were fewer, the total being 171,500 (4.5 per cent.) below 1936, and the total of horses was again reduced by 7,500 (0.9 per cent.). Poultry as a whole decreased, fowls by 9.0 per cent., ducks 12.5, geese 12.9 and turkeys 2.8 per cent.

In Scotland, horses in total showed no change this year from 1936 but there were further reductions in cattle and sheep and an increase in pigs. Cattle were fewer by 19,000 (1.4 per cent.) but some classes of the dairy herd showed an increase. The total number of sheep was reduced by 53,500 (0.7 per cent.) and that of pigs increased by 5,600 (2.4 per cent.). As in England and Wales the total number of poultry showed a decrease in 1937, fowls being less by 655,000, ducks 19,000 and geese 1,500, but turkeys increased by 20,300.

The numbers of livestock in Northern Ireland except for horses and pigs showed a falling off this year from the figures in 1936. All classes of cattle were further reduced, the total decrease being 39,437 (5.1 per cent.), while sheep were fewer by 5,902 (0.7 per cent.). Pigs increased by 47,821 (9.2 per cent.) while horses were practically unaltered at a total of 90,942 as compared with 90,836 in 1936. Poultry, except for turkeys, were fewer, fowls being reduced by 323,165 (3.4 per cent.).

It will be noticed that the reduction in the number of fowls was general in all three countries. The total reduction for the United Kingdom was 6,166,600 below the 1936 figure.

Number of livestock in England and Wales, Scotland and Northern Ireland.

CLASSIFICATION	England and Wales		Scotland		Northern Ireland	
	1937	1936	1937	1936	1937	1936
Total horses on agricultural holdings	*858,100*	*865,600*	*146,800*	*147,000*	*90,900*	*90,800*
Total Cattle	*6,614,000*	*6,540,300*	*1,294,000*	*1,313,000*	1) *730,200*	1) *769,600*
Cows and heifers in milk	2,215,500	2,227,500	365,500	368,500	237,300	249,800
Cows in calf but not in milk	394,000	405,100	56,000	55,900		
Heifers in calf	455,600	443,500	73,000	70,600	22,600	25,100
Other cattle:—						
2 years and above	1,011,100	997,000	211,500	212,500	79,100	86,100
1 year and under 2	1,273,400	1,251,400	318,000	331,500	193,100	198,900
under 1 year	1,264,400	1,215,800	270,000	274,000	197,600	209,700
Total sheep	*17,182,800*	*16,648,000*	*7,503,500*	*7,557,000*	*828,900*	*834,800*
Ewes kept for breeding	7,316,000	7,237,900	3,282,000	3,310,000	376,900	381,500
Other sheep:—						
1 year and above	1,484,800	1,668,600	963,500	974,000	46,000	50,000
over 6 months and under 1 year	322,000	437,500	3,258,000	3,273,000	406,000	403,300
under 6 months	8,060,000	7,304,000				
Total pigs	*3,632,300*	*3,803,800*	*242,000*	*236,400*	*569,400*	*521,700*
Sows kept for breeding	455,000	483,200	31,000	29,000	54,300	56,500
Other pigs	3,177,300	3,320,600	211,000	207,400	515,100	465,200
Fowls	*52,555,000*	*57,744,000*	*7,300,000*	*7,954,500*	*9,219,600*	*9,542,700*
Ducks	*2,281,000*	*2,606,000*	*217,000*	*236,000*	*428,000*	*498,700*
Geese	*552,000*	*634,000*	*24,600*	*26,100*	*116,600*	*139,000*
Turkeys	*687,000*	*707,000*	*117,100*	*96,800*	*420,300*	*389,300*

1) Horses used for agriculture and unbroken horses only.

Pigs in the United States.

According to a report on the hog situation issued in July by the United States Department of Agriculture, the present level of pig production in the United States is well below that of the years before 1934. On 1 January, 1937 there were on farms 42,774,000 head, which was 30 per cent. less than on 1 January, 1933. The cause of this heavy drop in a time of generally improving agricultural conditions was the severe droughts of 1934 and 1936, which sent up the price of maize feed to very high levels. The proof that this is the reason for the present low level of production may be seen from the fact that of the 30 per cent. decrease in the number of hogs on farms between 1 January, 1933 and 1 January, 1937 over two-thirds occurred in the western maize belt. In 1933, the number of hogs in this area was 46 per cent. of the United States total, but in 1937 it was only 34 per cent. The 1937 spring pig crop in the maize belt States was similarly 32 per cent. smaller than the 1932-33 average (38 per cent. lower in the western maize belt and 17 per cent. lower in the eastern maize belt); whereas in the States outside the maize Belt the spring pig crop was only 5 per cent. less than the 1932-33 average. The southern States in particular have increased their proportion of slaughterings in the past 3 years.

The important factor to be noted in the marketing year commencing on 1 October, 1937 is the high maize harvest, which according to the forecast of 10 August will be 1,489,000,000 centals (2,659,000,000 bushels), which would be well above the average of 1931-1935 and larger than all crops in recent years except 1932. This abundance of maize, accompanied by the present low level of pig supplies, is expected to cause a fairly high hog-corn price ratio by late autumn or early winter. This will encourage producers to delay marketings of spring pigs in order to feed to heavier weights. Consequently the proportion marketed before 1 January may be much smaller than usual. Slaughterings in general are expected to be smaller than those of the 1936-1937 year but higher in total weight than in the two previous years, as weights are heavier, though numbers will be less. Inspected slaughterings in the current year ending 1 September are expected to total 34,500,000 against a range of 43,500,000 to 47,100,000 in 1930 to 1933. The number of sows likely to be retained foi farrowing in the autumn of 1937 is estimated at slightly over 3 per cent. less than in the autumn of 1936, according to the Bureau of Agriculture's June Pig Report. This estimate must probably be raised owing to the improved maize harvest prospects since June.

The return of pig production to normal in the maize belt will be assisted by this year's crop but will not be likely to reach the 5 year average 1929-1933 until at least 1940 even if maize crops continue good for several years. Outside the maize belt no marked increase is expected.

In recent years, under the influence of higher prices and lower production, the United States has declined from the position of being a heavy net exporter of pork to being actually to a small degree a net importer in 1936-37. Production in general however, given normal maize harvests, is likely to increase over a period of years, since economists estimate that an increase of from 20 to 25 per cent. in hog slaughter from the 1937 level is necessary if producers are to realize « maximum total returns ».

Current information on livestock and derivatives.

Irish Free State: Pastures were normal in July and adequate supplies of feed were available. Milk yields were slightly below those of June and somewhat smaller than those for the corresponding period of last year

Netherlands: On the whole the pasture for milch cows in July was good. Compared with the corresponding month of last year milk production for the whole country increased about 2.5 per cent. Production was hardly different from normal in south Holland, south Brabant and Limburg; it was 6 per cent. lower in Utrecht and 7.5 per cent. in Zeeland. The increase in other provinces varied from 2 to 5 per cent.

United Kingdom: Grass was plentiful in England and Wales during July over most of the country but rain would be of benefit. Cattle and sheep are thriving. Milk yields generally have been up to average for the season. In Scotland certain feeds are rather scarce. The milk yield was generally well up to the average.

United States · On 1 July the condition of pastures ranged from poor to distressingly short in a broad central belt extending from eastern Montana and western North Dakota to South Texas. Elsewhere they were good to excellent with the exception of local areas, notably in the southeast where rainfall was light in June Condition improved materially in July in the Northern States and was particularly good in the area extending eastward from the western borders of Minnesota, Iowa and Missouri and also west of the Rockies with some exceptions The drought belt was narrowed during June by marked improvement in Wyoming, New Mexico and parts of Montana and the Dakotas but little, if any improvement occurred in Nebraska, Kansas, Oklahoma and Texas

July was marked by a shortage of rainfall in the Great Plains which were becoming seriously dry in the first days of August. Elsewhere the moisture situation was better.

Milk production resumed about the normal seasonal trend during June this year following unusually rapid increases in April and May Excellent pastures in June in the main dairy areas aided in maintaining the milk flow at a high level Where milking herds include many cows of dual purpose type, farmers have been encouraged by the highest June prices for dairy products since 1930 and appear to be making up for the reduced size of their herds by weaning calves earlier and milking a larger proportion of their cows than usual On 1 July milk production per cow in herds kept by crop correspondents was the highest for that date since 1930 and was between 4 and 5 per cent. higher than at the same time last year. With between 1 and 2 per cent fewer milk cows on farms than a year ago, total milk production on 1 July appears to have been about 3 per cent. higher than on the same date last year when the effects of the drought on milk production were beginning to be felt

Algeria In July work animals that were sufficiently fed remained in good condition On the other hand condition of non-work animals, which was satisfactory at the end of June, greatly declined owing to the high temperatures and hot winds, even in the coastal areas Frequently the animals did not find enough feed, while drinking water began to fail in several districts. Aphtic fever was still prevalent in the départements of Algiers and Oran and bovine malaria also in some cases caused appreciable mortality Shortage of feed also caused a certain mortality in the transhumant flocks on the plateaus of the south. At the end of July the situation was causing anxiety.

French Morocco: Pastures and rough grazings were almost dried up from the end of July and native livestock, whose owners keep no food reserves, no longer found any feed except in the stubble and some fallow land where couch-grass still resisted the drought. July was marked by drought and very high temperatures, with particularly frequent and violent hot winds, livestock semed to have suffered in these unfavourable conditions.

Tunisia: At the end of July, livestock still found in permanent meadows, pastures and stubble fields enough feed despite the drought.

Union of South Africa: In the Cape Province, good rains occurred during June throughout the south-western area. Winter grass was green and grazing promises to be abundant this year. In the north-west, good rains fell in most of the winter-rainfall areas, and farmers were trekking back with their stock. Feed was depleted in the dry areas. The lamb crop was a general success, but in many areas prospects are not good owing to lack of pasturage and fodder. Drought prevailed in most of the southern coastal area. Animals were in a fair state considering the difficult conditions. There was barely enough water to irrigate the lucerne lands, which are the chief source of stock feed.

Cold, dry spells with strong incessant winds were experienced in the Karroo area Though it was very dry at the end of June, stock had not last condition to such an extent as to necessitate the feeding of forage. A good crop of lambs was obtained, but their growth was retarded by the lack of green feed. Good rains were urgently needed to avert the threat of serious deterioration.

Bechuanaland experienced severely cold spells in June, but sufficient water and dry pasturage was available. Maize and kaffir corn crops were not the success expected.

In the border districts as well as the north-east weather was dry and cold and exceptionally windy for the time of year Stock was not threatened by lack of pasture as the harvested maize lands had become available at the end of the month.

In the Transkei territory conditions were bad Most of the stock had to be fed and many lambs succumbed.

Natal was exceptionally dry except on the coast, but the weather was mild. Grazing was dry but edible in June Abundant hay was available. Large stock was weaker than small stock

In the Orange Free State weather was fair at the beginning of June but suddenly became very cold and windy with severe frosts There was a scarcity of green feed, since heavy autumn rains had produced long dry grass quite unsuitable for small stock Moreover irrigation lands were overrun by green aphides and so could not make up the shortage of feed. Only maize-stalks could be used to some extent Prospects for livestock were therefore poor and trekking was likely in winter

In Transvaal weather to the end of June was exceptionally favourable and mild except for two sudden changes and some wind. Grazing though plentiful was too coarse and of little feeding value, so that several farmers had, as usual, moved their stock to the bushveld

Current information on sericulture.

Bulgaria. According to the most recent estimate, production of cocoons this year is about 3,549,000 pounds against 3,025,000 in 1936 and 2,924,000 on the average of the five years ending 1935; percentages, 117.4 and 121.4.

Italy According to the most recent estimate, production of fresh cocoons this year is 70,437,900 lb. against 71,257,100 lb in 1936 and 67,683,100 lb. on the average of the five years ending 1935; percentages 98.9 and 104.1.

Indo-China: At the end of June, the growth of mulberries was on the whole satisfactory in Tonkin. In Annam, the breeding of silk-worms was smaller in June than in May; the heat threatened rearing in north Annam; in central Annam, mulberries yielded few leaves owing to lack of rain and rearing was poor because of the high temperature.

Japan: Because of unfavourable weather conditions, the probable harvest of mulberries will be worse than last year.

According to the most recent estimate, production of spring cocoons this year will be about 348,360,000 lb. against 339,980,000 lb. in 1936 and 399,551,000 lb. on the average of the five years ending 1935; percentages, 102.5 and 87.2.

TRADE

Wheat. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JUNE				ELEVEN MONTHS (August 1 – June 30)				TWELVE MONTHS (August 1 – July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Bulgaria	435	20	0	0	4 159	593	0	0	683	0
Hungary	313	1 524	0	0	12 922	7 021	0	0	8,600	0
Lithuania	0	30	0	0	0	1 273	0	0	1,273	0
Poland Dantzig	3	50	0	0	1 123	1 105	0	0	1,165	0
Rumania					1) 21 316	1) 3 354	1) 1	1) 1	3 520	1
Yugoslavia	369	323	0	0	10 562	326	0	0	368	0
U. S. S. R.					1) 648	1) 16 789	1) 0	1) 93	16,801	134
Canada	7 308	15 458	6	1	99 755	123 667	81	9	139 215	9
Argentina	2 782	2 273	—	—	91 415	36 964	—	—	39 414	—
Chile					2) 0	2) 1 227	2) 0	2) 0	1 314	0
Uruguay	0	118	0	0	1 874	1 509	0	24	1 681	24
India by sea 5)	2 603	118	3	0	8 196	338	6	292	435	294
by land 5)					3) 401	3) 375	3) 110	3) 127	653	182
Iraq					1) 2 576	1) 136	1) 0	1) 5	197	5
Iran					2) 409	2) 378	2) 0	2) 0	709	0
Manchukuo			—	—	2) 365	2) 531	—	—	531	—
Syria & Leb. (Fr. mand.)	0	5	7	0	827	158	120	6	181	6
Turkey			—	—	1) 2 628	1) 317	—	—	317	—
Algeria					1) 3 422	1) 4 973	1) 559	1) 494	5 522	559
Egypt					1) 244	1) 3	1) 0	1) 1	3	1
French Morocco					2) 403	2) 2 309	2) 1 325	2) 0	2 919	0
Tunis					1) 121	1) 2 369	1) 642	1) 139	2 420	183
Australia	5 129	2 019	0	0	40 953	42 876	0	0	43 935	0
Importing Countries										
Germany	0	127	6 518	186	42	1 110	13 536	2 017	1 299	2 138
Austria	1	1	655	278	9	10	4 673	2 814	10	3,241
Belg.-Luxemb. Ec. U.	119	57	2 123	1 554	2 596	928	24 466	22 295	970	24 318
Denmark	102	0	401	568	392	35	3 713	4 493	35	5 150
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	13	0	0	79	58	144	80	83	84
Finland	0	0	140	192	0	0	1 389	1 420	0	1,618
France	27	860	648	940	1 082	7 908	8 051	15 144	8 627	16,110
Greece	0	0	953	1 040	0	0	11 816	7 846	0	8 823
Irish Free State	0	0	611	518	0	0	6 641	7 621	0	8 757
Italy	0	0	6 408	1,238	70	11	38 150	8 665	11	9 144
Latvia	0	0	118	0	0	878	596	0	926	0
Norway	0	0	367	295	0	0	3 698	3 261	0	3 383
Netherlands	0	0	735	1 041	55	4	10 347	10 410	4	11 365
Portugal	0	330	0	0	0	2 443	17	153	2 443	153
United Kingdom	563	34	9 064	11 571	1 131	670	100 806	104 660	846	114 401
Sweden	9	137	91	57	789	1 826	1 071	926	2 119	1,010
Switzerland	0	0	625	1 567	3	3	10 135	9 016	3	10 002
Czechoslovakia	631	0	28	1	4 907	4	35	1 302	4	1 302
United States	462	16	1 269	2 473	1 885	147	25 328	26 979	163	30 269
Brazil	—	—			—	—	3) 14 168	3) 14 021	—	23 285
Colombia	—	—			—	—	3) 231			
Peru					4) 0	4) 0	4) 1 327	4) 1 271	0	2 576
Ceylon	—	—	10	6	—	—	109	94	—	100
China					1) 726	1) 132	1) 1 060	1) 3 474	160	3 734
Chosen					2) 2	2) 0	2) 50	2) 71	0	85
Taiwan	—	—			—	—	2) 7	2) 45	—	45
Fr. Indo-China					2) 0	2) 0	2) 1	2) 1	0	1
Japan	—	—			—	—	1) 3 942	1) 7 683	—	8,400
British Malaya					1) 1	1) 1	1) 6	1) 14	2	15
Palestine (Br. mand.)					2) 0	2) 1	2) 1 018	2) 49	1	102
Union of South Afr.					1) 565	1) 0	1) 12	1) 22	0	25
New Zealand					2) 0	2) 0	2) 216	2) 169	0	264
Totals	**20,856**	**23,513**	**30,780**	**23,526**	**318,603**	**264,760**	**289,603**	**257,207**	**289,562**	**291,298**

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1) Up to 31 May. — 2) Up to 30 April — 3) Up to 31 March — 4) Up to 31 December — 5) From 1st April 37 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign untries

Wheat flour. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	June				Eleven months (August 1-June 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Germany	4	38	52	0	134	679	273	30	758	31
Bulgaria	0	0	0	0	84	0	0	0	0	0
Spain	—	—	—	—	—	—	—	—	—	—
France	147	223	55	97	2,652	2,997	790	1,138	3,199	1,222
Hungary	108	69	0	0	1,278	1,102	0	0	1,247	0
Italy	647	268	2	0	4,212	4,191	35	14	4,353	14
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland Dantzig	1	174	0	0	1,449	2,006	0	0	2,163	0
Romania	...	...	...	...	1) 6	1) 2	1) 0	1) 0	2	0
Yugoslavia	7	8	0	0	115	71	0	0	74	0
U. S. S. R.	...	...	...	...	1) 1,153	1) 485	1) 43	1) 371	741	425
Canada	764	843	6	7	8,214	8,887	104	113	9,759	120
United States	603	585	0	10	7,111	6,164	61	69	6,732	88
Argentina	181	106	—	—	2,020	1,580	—	—	1,761	—
Chile	...	...	...	...	2) 0	2) 69	2) 2	2) 24	72	30
Uruguay	0	40	0	0	121	285	0	0	301	0
Chosen	...	...	...	...	2) 41	2) 101	2) 0	2) 0	112	0
India by sea 5)	96	17	0	0	739	371	20	10	400	11
Iraq	...	...	...	...	1) 84	1) 68	1) 0	1) 1	82	1
Iran	...	...	..	...	2) 0	2) 4	2) 0	2) 0	4	0
Japan	...	...	...	...	1) 1,663	1) 3,687	1) 414	1) 180	4,111	243
Algeria	...	...	...	...	1) 472	1) 689	1) 69	1) 79	843	89
French Morocco	...	...	...	...	2) 10	2) 4	2) 0	2) 0	4	0
Tunis	...	...	...	...	1) 249	1) 362	1) 178	1) 25	410	31
Australia	635	1,069	0	0	10,284	11,129	0	1	12,147	1
Importing Countries:										
Austria	5	1	91	60	47	8	490	714	9	757
Belgo-Luxemb. E. U.	4	4	6	0	74	56	97	85	60	90
Denmark	2	1	13	23	21	20	147	194	22	217
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	57	66	0	0	412	611	0	687
Greece	0	0	2	1	0	0	15	21	0	22
Irish Free State	0	0	9	16	0	0	131	144	0	159
Norway	0	0	49	104	1	4	868	809	4	884
Netherlands	38	0	137	142	328	7	1,278	1,056	7	1,207
Portugal	0	0	0	1	0	0	37	91	0	97
United Kingdom	141	149	876	797	1,928	2 413	8,809	8,849	2,653	9,528
Sweden	2	0	0	0	26	12	2	1	17	1
Czechoslovakia	184	0	1	0	348	5	9	20	6	24
Haiti	—	—	..	...	—	—	1) 204	1) 206	—	258
Brazil	—	—	...	...	—	—	3) 651	3) 715	—	1,182
Colombia	—	—	...	...	—	—	3) 8	...	—	...
Peru	...	...	...	...	4) 0	4) 0	4) 13	4) 15	0	32
Ceylon	—	—	28	27	—	—	330	320	—	337
China	..	..	...	..	1) 216	1) 22	1) 457	1) 731	22	843
Netherl. Indies:										
Java and Madura	—	—	...	...	—	—	1) 887	1) 1,126	—	1,282
Outer Provinces	—	—	...	...	—	—	2) 511	2) 483	—	595
Indo-China	...	...	...	...	2) 0	2) 0	1) 337	1) 339	0	395
British Malaya	...	...	...	...	1) 121	1) 105	1) 1,286	1) 1,133	127	1,341
Manchukuo	...	...	...	...	2) 4	2) 3	2) 2,100	2) 5,019	3	6,462
Palestine Br. m. t.	...	...	...	...	2) 0	2) 0	2) 592	2) 424	0	644
Syria & Leb.: Fr. m. t.	4	15	5	8	184	89	83	129	121	129
Egypt	...	...	...	...	1) 26	1) 0	1) 45	1) 56	0	78
Union of South Africa	...	...	...	...	1) 3	1) 1	1) 9	1) 10	2	13
New Zealand	...	...	..	...	2) 1	2) 1	2) 44	2) 186	1	217
Totals	**3,573**	**3,610**	**1,389**	**1,359**	**45,419**	**47,679**	**21,841**	**25,542**	**52,329**	**29,787**

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1) Up to 31 May — 2) Up to 30 April. — 3) Up to 31 March — 4) Up to 31 December. — 5) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX *)	NET IM **)
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Total Wheat and Flour †) — Thousand centals (1 cental = 100 lb.).									
Germany	—	—	6,582	9	—	—	13,680	42	131	—
Austria	—	—	770	355	—	—	5,254	3,745	—	4,228
Belgo Luxem. E. U.	—	—	2,007	1,492	—	—	21,900	21,405	—	23,388
Bulgaria	435	20	—	—	4,271	593	—	—	683	—
Denmark	—	—	313	598	—	—	3,490	4,691	—	5,376
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	13	0	—	—	—	115	22	—	1
Finland	—	—	216	280	—	—	1,938	2,235	—	2,534
France	—	88	500	—	—	—	4,486	4,758	—	4,877
Greece	—	—	956	1 041	—	—	11,822	7,873	—	8,852
Hungary	458	1,617	—	—	14,626	8,491	—	—	10,263	—
Irish Free State	—	—	623	539	—	—	6,816	7,812	—	8,971
Italy	—	—	5,549	881	—	—	32,511	3,084	—	3,441
Latvia	—	0	118	—	—	877	596	—	926	—
Lithuania	0	30	—	—	0	1,274	—	—	1,274	—
Norway	—	—	432	434	—	—	4,854	4,335	—	4,556
Netherlands	—	—	866	1,230	—	—	11,559	11,806	—	12,963
Poland-Dantzig	4	282	—	—	3,054	3,779	—	—	4,049	—
Portugal	0	329	—	—	—	2,168	66	—	2,161	—
Romania		.	—	—	1) 21,323	1) 3 356	—	—	3,521	—
United Kingdom	—	—	9,481	12,402	—	—	108,850	112,570	—	122,720
Sweden	—	80	80	—	—	915	251	—	1,131	—
Switzerland 5)	—	—	624	1,567	—	—	10,132	9,014	—	9,999
Czechoslovakia	846	0	—	—	5,325	—	—	1,317	—	1,322
Yugoslavia	379	333	—	—	10,716	420	—	—	466	—
Totals Europe	*2 122*	*3,204*	*28,705*	*20,828*	*59,315*	*23,190*	*238,320*	*193,392*	*24,605*	*213,228*
U. S. S. R.			—	—	1) 2,129	1) 16,848	—	—	17,087	—
Canada	8,313	16,572	—	—	110,487	135,355	—	—	152,057	—
United States	—	—	3	1,691	—	—	14,043	18,704	—	21,262
Haiti	—	—			—	—	1) 272	1) 275	—	343
Argentina	3,023	2,414	—	—	94 109	39,071	—	—	41,725	—
Brazil	—	—			—	—	3) 15,036	3) 14,974	—	24,861
Chile	—	.		—	—	2) 1,286	2) 3	—	1,369	—
Colombia	—	—	..		—	—	3) 241	..	—	...
Peru	—	—		.	—	—	4) 1,344	4) 1,291	—	2,619
Uruguay	—	172	0	—	2,036	1,865	—	—	2 059	—
Ceylon	—	—	48	43	—	—	549	520	—	549
China	-	—			—	—	1) 654	1) 4 287	—	4,668
Chosen	.	.	—	—	2) 6	2) 63	—	—	64	—
Taiwan	—	—			—	—	2) 7	2) 45	—	45
India by sea 6)	2,728	140	—	—	9,148	528	—	—	659	—
by land 6)			—	—	3) 291	3) 247	—	—	471	—
Netherlands Indies										
Java and Madura	—	—	..		—	—	1) 1,182	1) 1,502	—	1,709
Outer Provinces	—	—	...	.	—	—	2) 681	2) 644	—	793
Indo-China	—	—	..	.	—	—	2) 424	2) 405	—	527
Iraq	.		—	—	1) 2,687	1) 221	—	—	300	—
Iran			—	—	2) 409	2) 383	—	—	714	—
Japan	—	—			—	—	1) 2,278	1) 3,008	—	3,243
British Malaya	—	—	...	..	—	-	1) 1,557	1) 1,383	-	1,631
Manchukuo	—	—	..	.	—	—	2) 2,429	2) 6,157	—	8,081
Palestine Br. m. t.	—	—	..	...	—	—	2) 1,807	2) 612	—	979
Syria & Leb. Fr. m. t.	—	13	8	—	842	99	—	—	209	—
Turkey	..	...	—	—	1) 2,628	1) 317	—	—	317	—
Algeria	.		—	—	1) 3,401	1) 5,293	—	—	5,874	—
Egypt	...	—	—	..	1) 219	—	—	1) 73	—	103
French Morocco	—	...	...	—	—	2) 2,314	2) 909	—	2,924	—
Tunis	—	.	...	—	—	1) 2,680	1) 425	—	2,741	—
Union of South. Afr.	...	—	—	.	1) 545	—	—	1) 33	—	40
Australia	5,976	3,445	—	—	54,665	57,713	—	—	60,130	—
New Zealand	—	—	...	...	—	—	2) 272	2) 416	—	554
Totals	**22,162**	**26,548**	**29,176**	**22,562**	**342,917**	**286,156**	**282,433**	**249,038**	**313,305**	**285,235**

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*) Excess of exports over imports — **) Excess of imports over exports

†) Flour reduced to grain on the basis of the coefficient. 1000 centals of flour = 1,333 333 centals of grain.

1) Up to 31 May — 2) Up to 30 April — 3) Up to 31 March — 4) Up to 31 December — 5) Wheat only — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries	**Rye.** — Thousand centals (1 cental = 100 lb.).									
Germany	0	0	1,081	60	1	820	2,130	601	821	691
Bulgaria	0	0	0	0	254	121	0	0	121	0
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	200	333	383	331	333	331
Hungary	214	43	0	0	2,736	188	0	0	210	0
Latvia	0	156	0	0	623	1,797	62	0	2,041	0
Lithuania	0	139	0	0	47	1,974	0	0	1,974	0
Poland-Dantzig	10	257	0	0	4,540	4,513	0	0	4,788	0
Romania	...	...	...	...	1) 2,355	1) 327	1) 0	1) 0	348	0
Sweden	0	43	0	0	4	888	166	19	903	19
Yugoslavia	7	0	0	0	89	0	0	0	0	0
U. S. S. R.	...	...	...	...	1) 1,552	1) 1,223	1) 0	1) 0	2,288	—
Canada	372	349	0	0	1,928	1,003	1	0	1,375	0
Argentina	129	269	—	—	3,381	2,152	—	—	2,273	—
Algeria	. .	...	...	...	1) 20	1) 20	1) 0	1) 0	27	0
Importing Countries										
Austria	1	2	396	120	7	18	3,601	949	19	1,004
Belgo-Luxemb. E. U.	0	0	42	203	38	28	1,118	3,184	28	3,680
Denmark	0	0	142	353	0	1	3,690	3,745	1	4,174
Finland	0	0	227	204	0	0	1,342	1,408	0	1,505
France	0	0	0	2	0	0	23	22	0	28
Greece	0	0	0	0	0	0	1	0	0	0
Italy	0	0	11	7	0	0	137	174	0	179
Norway	0	0	110	493	0	0	2,799	3,084	0	3,358
Netherlands	32	0	100	226	2,012	76	1,123	1,503	76	1,747
United Kingdom	0	0	14	0	...	. .	.	...	4	122
Switzerland	0	0	12	43	0	0	603	322	0	353
Czechoslovakia	0	0	2	1	3	4	14	17	4	18
United States	33	2	0	75	139	4	2,045	1 058	4	1,221
Palestine Br m t	—	—	...	..	—	—	2) 90	2) 72	—	90
French Morocco	...	...	...	..	1) 0	1) 0	1) 0	1) 0	0	0
Totals	**798**	**1,260**	**2,137**	**1,787**	**19,939**	**15,490**	**19,328**	**16,489**	**17,638**	**18,520**

1) Up to 31 May — 2) Up to 30 April.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1 June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935 36	1936-37	1935 36	1935 36	1935-36
	Barley. — Thousand centals (1 cental = 100 lb).									
Exporting Countries										
Bulgaria . . .	3	0	0	0	602	43	0	0	43	0
Denmark .	26	0	11	1	1,687	1,538	1,421	76	1 539	76
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	13	12	0	0	618	268	0	361	282	361
Latvia	0	0	0	0	0	244	0	0	244	0
Lithuania .	0	4	0	18	0	328	0	0	328	0
Poland Dantzig	4	341	0	0	6,337	7 432	0	0	7 728	0
Romania					1) 13 165	1) 3,730	1) 0	1) 0	4 066	0
Sweden	0	0	0	0	2	2	12	0	2	0
Czechoslovakia	0	2	0	0	1 163	782	2	2	806	2
Yugoslavia	12	0	0	0	180	2	1	25	2	25
U S S R					1) 189	1) 13,476	1) 0	1) 0	14 125	0
Canada	347	667	0	0	8 154	2,776	0	0	3,684	0
United States	41	328	852	2	2,218	4,483	8 031	136	4 738	337
Argentina	180	388	—	—	6 865	4 053	—	—	4,420	—
Chile			—	—	2) 1 451	2) 370	—	—	616	—
India by sea 3)	278	33	0	22	484	36	34	111	41	119
Iran					2) 361	2) 118	2) 0	2) 0	154	0
Iraq					1) 5 792	1) 2 195	1) 0	1) 0	3,312	0
Manchukuo			—	—	2) 19	2) 21	—	—	25	—
Syria & Leb Fr m t	10	141	0	0	1,163	854	18	6	927	6
Turkey			—	—	1) 1 318	1) 389	-	—	389	—
Algeria					1) 1 381	1) 673	1) 530	1) 454	789	575
Egypt					1) 524	1) 0	1) 3	1) 13	1	14
French Morocco					2) 4 251	2) 1 914	2) 0	2) 0	3 193	0
Union of South Afr					1) 0	1) 1	1) 0	1) 0	1	0
Australia	50	264	0	0	1,249	1 125	0	0	1 240	0
Importing Countries										
Germany	0	0	458	281	0	0	2 910	1 404	0	1,533
Austria	0	0	85	93	1	1	888	1 117	2	1,202
Belgo Luxemb E U	65	64	245	294	702	427	10 333	8 769	457	9,251
Estonia	0	0	0	3	0	0	56	33	0	33
Finland	0	0	2	3	0	0	34	80	0	82
France	1	0	72	374	6	0	5 722	4 566	0	5 064
Greece	0	0	22	1	0	0	178	152	0	153
Irish Free State	0	0	97	195	1	11	545	420	11	453
Italy	0	0	12	27	0	0	731	1 002	0	1 034
Norway	0	0	50	0	0	0	538	321	0	336
Netherlands	0	1	274	683	468	214	4 284	6 043	214	6,589
United Kingdom	0	0	944	1 633	107	7	19 278	20 869	8	22 254
Switzerland	0	0	224	172	0	0	2 848	2 488	0	2 547
Ceylon	—	—	0	1	—	—	10	15	—	16
Chosen	.				2) 10	2) 1	2) 1	2) 3	1	5
Indo China .					2) 0	2) 0	2) 0	2) 0	0	0
Japan	—	—			—	—	1) 299	1) 70	-	138
Palestine Br m t					2) 0	2) 1	2) 620	2) 404	1	526
Tunis		.			1) 3	1) 1 655	1) 838	1) 46	1,666	130
New Zealand					2) 0	2) 0	2) 101	2) 193	0	315
Totals . .	**1,030**	**2,241**	**3,348**	**3,803**	**60,465**	**49,170**	**60,266**	**49,179**	**55,055**	**53,176**

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1) Up to 31 May — 2) Up to 30 April — 3) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Oats. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	9	0	0	0	73	0	0	0	0	0
Hungary	1	41	0	0	169	101	0	0	107	0
Lithuania	0	0	0	0	0	518	47	0	518	0
Poland-Danzig	0	203	0	0	1,475	2,426	0	0	2,595	0
Romania	...	...	...	...	1) 563	1) 368	1) 0	1) 0	386	0
Czechoslovakia	11	0	0	0	902	82	2	13	82	13
Yugoslavia	5	0	0	0	64	73	0	0	73	0
U S S R	...	...	...	...	1) 116	1) 3,281	1) 5	1) 8	3,282	8
Canada	264	424	0	0	2,096	3,569	1	1	4,074	116
United States	4	117	1	1	19	202	49	22	204	22
Argentina	661	210	—	—	7,796	2,943	—	—	3,092	—
Chile	...	...	...	..	2) 1 132	2) 503	2) 0	2) 0	670	—
Chosen	..	...	.	.	2) 40	2) 0	2) 1	2) 4	1	4
India by sea 3)	2	1	—	—	7	4	—	—	5	—
French Morocco	...		..	...	2) 172	2) 131	2) 0	2) 0	170	0
Tunis	..	.	...	..	1) 15	1) 210	1) 7	1) 0	215	0
Union of South Afr	...	..	..	...	1) 59	1) 6	1) 0	1) 0	7	0
Australia	5	3	0	0	103	94	4	1	97	2
New Zealand	...	.	..	..	2) 2	2) 1	2) 7	2) 19	2	20
Importing Countries:										
Germany	0	0	256	12	1	1	847	268	1	463
Austria	0	0	141	70	0	0	752	564	1	616
Belgo-Luxemb E U.	0	0	121	47	4	0	847	843	0	898
Denmark	0	4	103	35	189	440	1,432	137	440	142
Estonia	0	0	16	0	0	0	129	45	0	45
Finland	0	0	3	36	0	0	114	742	0	769
France	1	0	141	42	6	7	2,343	419	7	472
Greece	0	0	0	6	0	0	93	89	0	92
Italy	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	42	256	1	3	558	3,319	4	3,383
Latvia	0	0	0	0	0	130	11	0	130	0
Norway	0	0	85	0	1	1	132	6	1	6
Netherlands	13	4	124	35	1,128	221	588	444	221	512
United Kingdom	7	2	194	442	34	38	1,854	2,597	41	2,865
Sweden	0	0	130	19	55	177	527	267	180	279
Switzerland	0	0	315	358	0	0	4,330	4,076	0	4,415
Uruguay	0	1	0	0	0	1	10	0	1	
Ceylon	—	—	1	2	—	—	13	12	—	13
Indo-China	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	0
Japan	—	—	...	...	—	—	1) 51	1) 49	—	50
Syria and Lebanon: Fr. m. t	1	0	0	0	3	1	1	2	1	2
Algeria	...	..	...	...	1) 806	1) 164	1) 31	1) 38	259	46
Egypt	—	—	..	...	—	—	1) 1	1) 1	—	2
Totals	**981**	**1,010**	**1,673**	**1,361**	**17,031**	**15,696**	**14,787**	**13,986**	**16,867**	**15,255**

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1) Up to 31 May. — 2) Up to 30 April — 3) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JUNE				EIGHT MONTHS (November 1-June 30)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Bulgaria	160	517	0	0	2,144	1,195	0	0	1,896	0
Hungary	170	0	0	496	1,877	32	10	6,617	40	7,305
Romania	...	...	...	...	1) 12,439	1) 12,457	1) 0	1) 0	18,831	0
Yugoslavia	1,258	51	0	0	7,547	880	1	0	1,445	0
U. S. S. R.	...	...	...	...	1) 0	1) 12	1) 1	1) 0	12	0
Haiti	...	...	—	—	1) 2	1) 2	—	—	3	—
Santo Domingo	...	...	—	—	1) 198	1) 122	—	—	307	—
Argentina	19,231	9,638	—	—	147,857	97,907	—	—	172,041	—
Brazil	...	...	—	—	3) 27	3) 71	—	—	113	—
Chile	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	0
China	...	. .	—	—	1) 189	1) 100	—	—	189	—
India by sea 5)	0	0	—	—	2	2	—	—	2	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 3,213	1) 1,606	—	—	2,485	—
Outer Provinces	...	...	—	—	1) 984	1) 322	—	—	765	—
Indo-China	...	...	—	—	1) 4,021	1) 4,072	—	—	10,542	—
Iraq	...	...	—	—	1) 6	1) 5	—	—	6	—
Manchukuo	.	. .	—	—	2) 1,663	2) 1,026	—	—	1,716	—
Syria and Lebanon Fr. m. t.	0	5	0	1	4	57	1	1	78	2
Turkey	..	..	—	—	1) 4	1) 0	—	—	0	—
Egypt	..	...	...	..	1) 49	1) 1	1) 0	1) 6	2	9
Madagascar	. .	...	...	...	1) 29	1) 63	1) 0	1) 0	356	—
French Morocco	...	. .	.	. .	2) 390	2) 533	2) 0	2) 0	1,391	0
Union of South Afr.	1 064	0	.	.	1,111	1,440	1) 1	1) 4	1,446	5
Importing Countries										
Germany	0	0	3,947	320	0	0	12,857	3,422	0	4,174
Austria	0	0	713	640	0	0	5,069	4,862	0	7,024
Belgo-Luxemburg Econ. Union	85	8	1,648	1,493	395	368	14,680	13,269	507	19,404
Denmark	0	0	1,099	180	0	0	11,515	2,479	0	4,521
Spain	—	—	—	—	—	—	—	—		
Estonia	0	0	0	0	0	0	241	0	0	0
Finland	0	0	68	114	0	0	1,140	1,525	0	2,031
France	1	0	925	537	13	2	10,784	9,746	3	15,328
Greece	0	0	69	219	0	0	909	1,209	0	1,519
Irish Free State	0	0	347	317	0	0	4,065	2,864	0	4,806
Italy	0	0	197	668	0	0	1,372	3,514	0	4,001
Latvia	0	0	0	0	0	0	118	0	0	0
Norway	0	0	321	243	0	0	2,419	1,697	0	2,759
Netherlands	0	2	1,344	1,340	0	2	14,799	13,556	2	19,688
Poland-Dantzig	0	0	112	0	0	0	113	0	0	0
Portugal	0	0	48	38	0	2	155	292	2	388
United Kingdom	232	88	5,355	4,878	1,609	818	56,808	51,949	1,479	79,085
Sweden	0	0	439	195	0	0	3,101	947	0	1,422
Switzerland	0	0	156	123	0	0	1,950	1,260	0	1,742
Czechoslovakia	0	0	168	190	18	0	805	1,445	0	2,345
Canada	25	0	204	118	215	45	7,676	1,650	62	4,723
United States	6	106	7,742	19	49	207	35,201	5,267	295	13,732
Peru	...	...	...	...	4) 0	4) 0	4) 0	4) 11	0	45
Chosen	...	...	...	...	2) 17	2) 1	2) 174	2) 209	3	599
Japan	—	—	...	...	—	—	1) 4,410	1) 3,708	—	6,456
Palestine Brit. m. t.	...	...	...	...	2) 1	2) 35	2) 282	2) 55	40	154
Algeria	...	...	..	...	1) 65	1) 12	1) 48	1) 30	30	93
Tunis	...	...	...	..	1) 0	1) 5	1) 206	1) 0	5	142
Australia	0	0	0	0	0	0	4	21	1	21
New Zealand	...	...	...	...	2) 0	2) 0	2) 14	2) 26	0	57
Totals	**22,232**	**10,415**	**24,902**	**12,129**	**186,138**	**123,402**	**190,929**	**131,641**	**216,093**	**203,580**

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1) Up to 31 May — 2) Up to 30 April. — 3) Up to 31 March. — 4) Up to 31 December. — 5) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	June				Six months (January 1-June 30)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:	**Rice.** — Thousand centals (1 cental = 100 lb.).									
Spain	—	—	—	—	—	—	—	—	—	—
Italy	237	252	0	8	1,947	1,347	8	18	3,147	28
United States	85	1	193	113	407	103	1,130	462	235	1,151
Brazil	...	...	—	—	3) 73	3) 313	—	—	1,176	—
Chosen	...	...	...	...	2) 35	2) 44	2) 0	2) 1	153	3
Taiwan	...	...	...	..	2) 0	2) 0	2) 0	2) 0	1	0
India: by sea 4)	5) 320	2,276	6) 3,078	283	7) 13,314	17,396	8) 9,599	2,036	29,931	3,236
» : by land 4)	..	...	...	...	3) 188	3) 157	3) 626	3) 592	513	1,385
Indo-China	...	...	..	...	1) 13,626	1) 16,525	2) 9	2) 12	38,572	69
Iran	...	...	...	...	2) 687	2) 566	2) 0	2) 0	1,251	0
Iraq	...	...	...	..	1) 5	1) 5	1) 0	1) 0	13	1
Siam	1,230	2,748	—	—	10,984	18,153	—	—	35,249	—
Egypt	...	...	...	...	1) 2,048	1) 1,039	1) 1	1) 1	3,070	2
Importing Countries:										
Germany	118	69	468	435	204	237	1,929	1,778	561	3,805
Austria	0	0	56	59	0	0	344	270	0	604
Belgo-Luxemb. E. U.	56	2	185	57	311	58	959	433	220	1,216
Denmark	0	0	30	9	0	0	100	173	0	182
Estonia	—	—	3	2	—	—	10	8	—	22
Finland	—	—	14	20	—	—	163	111	—	313
France	43	18	1,687	1,901	549	148	10,218	7,518	376	18,870
Greece	0	0	54	50	0	0	385	293	0	665
Hungary	0	0	35	29	0	0	178	184	0	349
Irish Free State	0	0	7	2	0	0	38	44	0	83
Latvia	0	0	1	1	0	0	12	6	0	16
Lithuania	0	0	2	0	0	0	7	3	0	9
Norway	0	0	11	13	0	0	70	62	0	101
Netherlands	280	190	653	277	1,556	793	3,033	2,101	2,437	4,414
Poland-Dantzig	19	13	169	187	34	43	593	639	211	1,207
Portugal	0	0	5	6	0	0	21	41	0	455
Romania	—	—	...	...	—	—	1) 213	1) 173	—	654
United Kingdom	15	8	274	249	106	78	1,546	1,412	202	2,490
Sweden	—	—	126	8	—	—	203	143	—	234
Switzerland	0	0	21	22	0	0	218	222	0	521
Czechoslovakia	0	0	312	220	0	0	565	513	0	1,138
Yugoslavia	0	0	33	66	0	0	215	247	0	492
U. S. S. R	...	...	...	...	1) 6	1) 10	1) 640	1) 590	21	1,159
Canada	5	3	98	230	20	10	363	535	28	783
Haiti	—	—	...	...	—	—	1) 15	1) 14	—	44
Chile	—	—	...	...	—	—	2) 134	2) 155	—	356
Colombia	—	—	..	...	—	—	3) 15	3) 56	—	267
Peru	..	...	...	...	...	...	..	...	0	737
Ceylon	0	0	1,018	1,049	1	2	6,522	6,292	2	11,926
China	...	...	...	...	1) 363	1) 234	1) 1,900	1) 3,182	592	6,842
Netherlands Indies:										
Java and Madura	...	...	...	...	1) 73	1) 23	1) 33	1) 158	263	190
Outer Provinces	...	...	...	...	1) 96	1) 60	2) 1,019	2) 1,839	246	4,915
Japan	...	...	...	...	1) 98	1) 67	1) 32	1) 158	234	1,221
British Malaya	...	...	...	...	1) 1,120	1) 1,580	1) 6,070	1) 6,350	4,091	16,150
Manchukuo	...	...	..	...	2) 12	2) 14	2) 495	2) 1,083	39	2,360
Palestine: Br m. t.	...	...	...	...	2) 48	2) 0	2) 175	2) 95	0	396
Syria & Leb.: Fr.m.t.	0	0	49	44	0	0	262	189	0	412
Turkey	—	—	...	...	—	—	1) 0	1) 2	—	7
Algeria	...	...	..	...	1) 20	1) 2	1) 427	1) 130	11	480
Madagascar	...	...	...	...	1) 40	1) 26	1) 0	1) 23	54	65
French Morocco	—	—	..	...	—	—	2) 235	2) 42	—	187
Tunis	...	...	...	...	1) 0	1) 0	1) 242	1) 16	0	114
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 586	1) 524	0	1,266
Australia	169	19	5	5	311	106	31	34	267	72
New Zealand	...	...	...	...	2) 0	2) 0	2) 25	2) 20	0	71
Totals	**2,577**	**5,599**	**8,587**	**5,345**	**48,282**	**59,139**	**51,614**	**40,988**	**123,166**	**93,735**

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1) Up to 31 May — 2) Up to 30 April. — 3) Up to 31 March — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) Of which trade with Burma 2 thousand centals. — 6) Of which trade with Burma 3,078 thousand centals. — 7) Of which trade with Burma 5 thousand centals — 8) Of which trade with Burma 9,597 thousand centals

COUNTRIES	JUNE				SIX MONTHS (January 1-June 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
	Linseed. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Lithuania	1	30	0	0	108	179	0	0	525	0
Romania	...	...	...	...	1) 3	1) 2	1) 0	1) 0	39	0
Argentina	2,151	1,636	—	—	23,649	15,229	—	—	32,557	—
Uruguay	65	362	—	—	661	1,149	—	—	1,648	—
China	...	...	—	—	1) 125	1) 562	—	—	812	—
India: by sea 4)	518	554	0	0	2,020	3,195	0	0	6,959	0
» : by land 4)	—	—	...	...	—	—	3) 12	3) 35	—	308
Iraq	...	...	—	—	1) 8	1) 0	—	—	24	—
French Morocco	...	...	—	—	2) 36	2) 24	—	—	211	—
Tunis	...	...	...	...	1) 0	1) 0	1) 1	1) 0	0	0
New Zealand	...	...	...	...	2) 4	2) 1	2) 0	2) 0	9	0
Importing Countries:										
Germany	0	0	281	566	0	0	2,104	2,874	0	4,824
Austria	0	0	0	0	0	2	6	6	2	13
Belgo Luxemb. E. U.	1	1	73	107	56	87	1,371	1,196	124	2,419
Denmark	—	—	56	36	—	—	283	238	—	449
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	4	8	2	0	15	3	20
Finland	0	0	15	2	0	0	86	74	0	136
France	0	0	798	456	6	3	3,764	3,613	4	6,179
Greece	0	0	11	2	0	0	51	20	0	71
Hungary	0	0	15	0	1	0	20	4	0	4
Irish free State	0	0	7	11	0	0	55	56	0	120
Italy	0	0	202	57	0	0	884	535	0	1,194
Latvia	0	0	1	2	43	25	12	31	47	59
Norway	0	0	30	49	0	0	320	272	0	473
Netherlands	2	2	338	378	84	70	3,804	3,298	101	7,287
Poland-Dantzig	0	5	0	0	0	74	0	0	78	0
United Kingdom	0	1	539	516	0	1	3,589	3,030	1	6,088
Sweden	—	—	52	41	—	—	626	377	—	808
Czechoslovakia	0	0	73	54	0	0	333	272	0	536
Yugoslavia	0	0	15	11	0	0	105	58	0	95
Canada	0	0	31	68	3	4	285	415	101	726
United States	—	—	1,490	418	—	—	9,830	3,821	—	8,604
Japan	...	...	...	...	1) 0	1) 0	1) 98	1) 110	0	284
Palestine: Br. m. t.	—	—	...	...	—	—	2) 14	2) 13	—	27
Algeria	...	...	...	...	1) 0	1) 1	1) 28	1) 1	3	2
Egypt	...	...	...	...	1) 5	1) 1	1) 0	1) 2	4	7
Australia	0	0	100	12	0	0	450	232	0	515
Totals	**2,738**	**2,591**	**4,127**	**2,790**	**26,820**	**20,611**	**28,131**	**20,598**	**43,252**	**41,248**

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1) Up to 31 May. — 2) Up to 30 April. — 3) Up to 31 March. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:	**Cotton.** — Thousand centals (1 cental = 100 lb.).									
United States . . .	1,189	1,565	180	62	27,799	30,525	1,170	673	31,337	774
Haiti .	. .	. .	—	—	1) 114	1) 112	—	—	126	—
Santo Domingo	...	...	—	—	1) 2	1) 0	—	—	0	—
Argentina	38	155	—	—	664	848	—	—	1,030	—
Brazil	...	...	—	—	3) 2,910	3) 1,750	—	—	3,551	—
Peru	...	...	—	—	4) 864	4) 976	—	—	1,884	—
India: by sea 5) .	1,511	1,233	273	125	16,139	13,622	1,767	1,141	14,800	1,275
» : by land 5) .	...	...	—	—	3) 7	3) 3	—	—	6	—
Netherlands Indies Java and Madura	...	...	—	—	1) 26	1) 17	—	—	18	—
Iraq .	...	. .	...	.	1) 40	1) 19	1) 2	1) 1	19	1
Iran .	. .	...	...	...	2) 321	2) 239	2) 0	2) 0	503	0
Syria and Lebanon Fr. m t	1	3	0	0	79	77	0	0	79	0
Turkey . . .	...	...	—	—	1) 295	1) 412	—	—	469	—
Egypt	...	...	—	—	1) 8,036	1) 7,214	—	—	8,100	—
French Morocco	. .	...	. .	...	2) 1	2) 0	2) 1	2) 1	0	1
Union of South Afr	...	...	...	...	1) 5	1) 7	1) 9	1) 0	10	0
Importing Countries:										
Germany	0	1	485	487	2	573	5,266	6,936	574	7,265
Austria	0	0	68	47	1	1	816	824	1	877
Belgo-Luxemb. E. U.	75	27	248	168	684	559	2,750	2,196	653	2,378
Bulgaria. .	0	0	16	8	0	0	177	176	0	180
Denmark	—	—	19	19	—	—	190	163	—	177
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	7	7	0	0	118	107	0	119
Finland	0	0	35	16	1	0	280	260	0	279
France	26	17	399	442	366	313	6,653	6,677	332	7,139
Greece	0	0	4	5	0	10	61	104	10	110
Hungary	0	0	42	45	0	0	511	507	0	560
Italy	0	0	324	28	0	0	3,325	1,776	0	2,130
Latvia	0	0	9	7	0	0	108	90	0	97
Lithuania .	0	0	4	3	0	0	38	29	0	32
Norway	0	0	4	4	0	0	72	65	0	70
Netherlands . . .	2	0	92	53	16	5	1,224	915	6	1,001
Poland - Dantzig . .	0	0	161	112	2	4	1,493	1,487	4	1,615
Portugal	—	—	54	24	—	—	543	459	—	484
Romania .	...	...	. .	...	1) 0	1) 0	1) 262	1) 131	0	162
United Kingdom .	63	59	1,120	1,326	561	609	15,057	13,810	748	15,169
Sweden	—	—	76	54	—	—	698	617	—	672
Switzerland	0	0	42	33	0	1	681	509	1	549
Czechoslovakia . .	4	3	213	120	49	45	2,343	1,995	48	2,129
Yugoslavia	0	0	29	28	1	0	382	336	0	375
U. S. S. R . . .	...	...	...	...	1) 189	1) 0	1) 408	1) 510	0	512
Canada	—	—	134	7	—	—	1,557	1,298	—	1,357
Chile	—	—	. .	...	—	—	2) 43	2) 19	—	29
Colombia . . .	—	—	...	...	—	—	3) 46	...	—	...
Ceylon	0	0	4	2	0	0	18	21	0	22
China	...	...	...	...	1) 1,097	1) 831	1) 412	1) 797	892	916
Chosen	...	...	...	...	2) 0	2) 0	2) 27	2) 19	0	20
Taiwan	—	—	...	...	—	—	2) 7	2) 5	—	6
Indo-China . . .	...	...	...	...	2) 11	2) 8	2) 188	2) 65	9	111
Japan	...	...	...	...	1) 598	1) 455	1) 19,031	1) 14,659	582	18,088
Manchukuo	...	...	...	...	2) 3	2) 0	2) 551	2) 328	0	428
Palestine: Br. m t	...	...	.	. .	2) 0	2) 0	2) 9	2) 14	0	16
Algeria	...	...	...	...	1) 2	1) 1	1) 4	1) 4	1	5
Australia	0	0	6	6	0	1	50	81	1	86
Totals . . .	**2,907**	**3,063**	**4,048**	**3,306**	**60,885**	**59,237**	**68,348**	**59,805**	**65,794**	**67,216**

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1) Up to 31 May. — 2) Up to 30 April — 3) Up to 31 March — 4) Up to 31 December. — 5) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Wool. — Thousand lb.

COUNTRIES	June				Ten months (Sept 1-June 30)				Twelve months (Sept. 1-Aug 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Hungary	0	31	229	150	789	580	1,069	1,528	952	1,900
Irish Free State	1,292	990	71	75	13,113	12,505	683	410	16,098	569
Argentina a)	10,889	8,644	—	—	232,831	216,503	—	—	233,382	—
Argentina b)	3,406	4,096	—	—	38 402	42,020	—	—	45,720	—
Chile	...	. .	..	.	2) 24,705	2) 16,971	2) 487	2) 902	19,004	1,504
Peru	.		—	—	4) 4 323	4) 3 569	—	—	12 445	—
Uruguay a)	2,458	4,297	0	0	126,226	85,842	0	0	90,568	0
Uruguay b)	714	575	0	0	12 286	9,425	0	0	10,274	0
China	..		—	—	1) 32,287	1) 25,329	—	—	31,350	—
India by sea 5)	7,169	3,576	443	262	63,403	49 245	6,107	6,061	55,923	6,784
" by land 5)	—	—	..	.	—	—	3) 13,012	3) 7,787	—	16,462
Iraq	.	.	...	. .	1) 10,759	1) 7,185	1) 62	1) 13	11,338	35
Iran	.	. .		...	2) 11,327	2) 11,352	2) 0	2) 0	19 837	0
Manchukuo		.	.	...	2) 5,187	2) 3,675	2) 1,153	2) 919	6 078	1,321
Palestine Br m t					2) 234	2) 119	2) 7	2) 18	205	20
Syria & Leb Fr m t	311	412	328	13	7,013	3,680	820	185	4,930	223
Algeria				.	1) 16 779	1) 9 588	1) 2,414	1) 1,281	14,793	2,079
Egypt					1) 4 160	1) 2,668	1) 35	1) 62	4,096	64
French Morocco				.	2) 5,864	2) 1,444	2) 31	2) 20	3 739	57
Tunis					1) 6 543	1) 840	1) 168	1) 373	1 107	518
Un of S Africa a)	8 929	9 156	.		240 190	206,303	1) 176	1) 97	213,150	97
Un of S Africa b)	996	454			8,073	5 461	1) 1 799	1) 1 651	6,512	2,174
Australia a)	19 220	19 158	381	880	728 394	701 754	3,098	8 757	732,907	9,222
Australia b)	4 361	4 129	15	0	56 577	54 490	77	110	64,627	157
New Zealand a)	5 318	4,231			228 221	257 556	2) 99	2) 90	262,902	90
New Zealand b)	5 900	5 040			42,274	42 221	2) 4	2) 13	52,812	13
Importing Countries										
Germany a)	0	0	21 757	20 884	234	366	144,383	154 754	395	182,850
Germany b)	7	42	3 201	4 290	201	1 131	32,351	27 805	1,146	35,991
Austria	15	22	1 246	2 136	148	218	16,857	20 887	251	23,671
Belgo Luxemb Econ Un a)	6 812	2 156	21,078	12,231	89 728	60,616	250,342	199 144	68,859	220,794
Belgo Luxemb Econ Un b)	1,812	1,559	430	311	23,911	21,678	6,221	4,394	26,546	5,437
Bulgaria	0	0	117	223	0	0	1 195	1 321	0	1 612
Denmark	13	31	472	452	377	337	5 203	4,345	392	4,921
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	37	22	0	0	615	736	0	895
Finland	2	0	582	470	247	203	5,770	4,769	214	5,692
France	6,541	3,691	39,846	31 099	65 963	44 798	274 155	323,287	57,431	362,091
Greece	234	220	564	1 014	1,936	1,215	6 415	9,306	1,676	11,050
Italy a)	0	2	9,969	2,414	0	212	60,857	33 012	212	39,256
Italy b)	2	0	789	395	1,310	26	5,461	7,507	42	8 871
Latvia	0	0	128	154	0	0	1 482	1,590	0	2,006
Lithuania	4	0	101	106	7	0	697	743	0	891
Norway	161	99	227	220	1 413	944	2,465	2 412	1,111	2,820
Netherlands a)	282	238	249	443	4,683	2,652	5,258	5 695	3,499	6,975
Netherlands b)	40	31	461	260	902	1,116	5,807	4 279	1,235	5,110
Poland - Dantzig	49	2	3 642	1,113	192	157	44 655	38 180	168	44,406
Portugal	194	77	348	172	2,352	906	3,031	2,831	1 210	3 042
Romania					1) 939	1) 267	1) 1,349	1) 908	306	1,056
United Kingdom	29,227	25,988	81,737	67,980	266,200	271,853	761 400	802,988	321,201	879,321
Sweden	—	—	1,735	862	—	—	18,464	16 967	—	20 324
Switzerland	22	26	1,775	1,958	249	192	15,410	13,530	256	15,973
Czechoslovakia	66	97	3,280	2,465	368	941	37,269	36 639	1,074	43,222
Yugoslavia	13	723	564	939	1,019	4,255	7,033	7,593	4,958	9,509
U S S R a)	..	...		...	1) 0	1) 0	1) 44,196	1) 44,996	0	49,077
U S S R b)	.	..			1) 0	1) 0	1) 14,147	1) 10,146	0	14,667
Canada	141	492	4,310	2,910	6,506	7,374	23 283	19 676	8,543	22,520
United States	2	0	28,517	17,542	13	24	336,413	208,269	24	241,894
Japan	...	. .	...	...	1) 271	1) 883	1) 215,223	1) 232,090	1,102	261,981
Totals	**116,602**	**100,285**	**228,629**	**174,445**	**2,389,129**	**2,192,639**	**2,378,708**	**2,271,076**	**2,416,600**	**2,571,214**

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a) = Wool, greasy. — b) Wool, scoured — 1) Up to 31 May — 2) Up to 30 April — 3) Up to 31 March — 4) Up to 31 December — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

Butter. — Thousand lb.

COUNTRIES	June				Six months (January 1 June 30)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries										
Austria	408	840	0	2	3 082	3 100	4	7	7,802	13
Bulgaria	2	2	0	0	9	2	0	0	73	0
Denmark	33,224	31,006	0	0	169,726	161,079	0	7	322,328	185
Estonia	3,799	3,188	0	0	11,969	9,121	0	0	24,152	0
Finland	4 059	2,787	0	0	18 506	15,192	0	0	30,836	0
Hungary	950	739	0	0	6 466	3,527	0	0	10,401	0
Irish Free State	8,543	9,564	7	2	16 081	20 929	1,453	4	58,032	11
Latvia	4,621	4,308	0	0	17,712	16,244	0	0	38,118	0
Lithuania	3,913	5,049	0	0	11,530	11,413	0	0	32,252	0
Norway	0	11	0	0	245	362	0	0	423	0
Netherlands	12,630	12,868	0	2	60,890	64,642	18	33	132,686	71
Poland-Dantzig	2,399	1,049	0	0	6,116	7,871	0	0	24,046	0
Romania	..	..	...	...	1) 53	1) 57	1) 0	1) 0	218	0
Sweden	5,419	4,270	0	0	23,797	18,519	0	412	42,126	414
Yugoslavia	82	82	—	—	132	93	—	—	269	—
U. S. S. R.			.		1) 4 065	1) 3,851	1) 24	1) 295	51,097	15,679
Argentina	328	1,623	—	—	13,644	11,391	—	—	22,642	—
Chile	..	.	..	..	2) 7	2) 11	2) 0	2) 0	31	0
Syria & Leb.: Fr m t.	9	37	16	7	161	331	97	106	750	161
Turkey	.		—	—	1) 2	1) 9	—	—	33	—
Union of South Afr			.	..	1) 6 982	1) 7,555	1) 0	1) 0	9,273	0
Australia	9,473	7,145	0	0	94,931	106 257	0	2	185,672	4
New Zealand	26 614	26,158	—	—	188,489	156,621	—	—	313,168	—
Importing Countries										
Germany	0	0	11,817	9,520	0	0	77,050	75,046	0	166,245
Belgo Luxemb E U.	2	4	4	130	22	33	2,886	7,072	68	8,139
Spain	—	—	—	—	—	—	—	—	—	—
France	955	1,618	119	134	3,250	4,127	719	3,452	12,679	4,251
Greece	—	—	77	117	—	—	317	375	—	780
Italy	126	205	66	97	694	562	4,616	269	1,107	864
Portugal	9	0	0	13	35	0	26	196	11	340
United Kingdom	518	514	108,247	98,190	6,795	5,152	543,474	549,464	9,237	1,095,624
Switzerland	0	0	20	24	4	2	5,005	1,466	7	3,223
Czechoslovakia	2	0	575	110	838	2	1,259	340	379	496
Canada	40	908	2	0	216	1,063	51	106	5,130	119
United States	60	134	223	168	467	454	9,591	4,680	825	9,872
Peru	..	.	..	.	...	..	.	..	26	467
Ceylon	—	—	66	68	—	—	386	375	—	805
China	—	—	.	..	—	—	1) 478	1) 423	—	939
India by sea 4)	35	13	73	71	172	119	487	505	218	944
» . by land 4)	—	—	..		—	—	3) 2,690	3) 2,275	—	5,022
Netherlands Indies										
Java and Madura	—	—	...	...	—	—	1) 3,534	1) 3,889	—	9,196
Outer Provinces	—	—	...	...	—	—	2) 1,120	2) 1,045	—	3,078
Indo-China	...	...	...	..	2) 0	2) 2	2) 284	2) 207	4	917
Iraq	...	...	...	...	1) 7	1) 0	1) 11	1) 4	2	13
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 7	2	4
Japan	...	...	..	..	1) 13	1) 586	1) 1,164	1) 7	688	13
British Malaya	.	...	..	...	1) 247	1) 262	1) 2,280	1) 1,748	631	4,105
Manchukuo	—	—	...	...	2) 119	2) 40	—	—	—	187
Palestine: Br. m t	—	—	...	...	—	—	2) 1,658	2) 1,638	—	5,494
Algeria	...	...	..	...	1) 2	1) 2	1) 1,790	1) 1,629	9	4,394
Egypt	...	...	..	...	1) 7	1) 33	1) 412	1) 478	42	1,316
French Morocco	—	—	...	..	—	—	2) 1,314	2) 1,501	—	4,017
Tunis	...	...	...	...	1) 0	1) 2	1) 869	1) 930	4	2,026
Totals	**118,218**	**114,122**	**121,314**	**108,655**	**667,364**	**630,578**	**665,186**	**659,953**	**1,337,497**	**1,349,428**

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1) Up to 31 May — 2) Up to 30 April — 3) Up to 31 March — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cheese. — Thousand lb.

COUNTRIES	June				Six months (January 1-June 30)				Twelve monts (Jan. 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	888	362	260	209	5,005	4,352	1,122	1,019	8,620	1,881
Bulgaria	163	251	0	0	1,376	1,878	0	0	4,206	0
Denmark	1,442	1,737	0	0	10,055	11,072	15	9	21,008	20
Estonia	49	2	0	0	271	86	0	0	198	2
Finland	1,164	756	2	2	6,457	5,071	13	9	10,864	26
Italy	4,689	2,857	935	877	26,817	14,623	3,799	3,772	42,845	7,460
Latvia	22	2	0	0	86	44	0	0	119	0
Lithuania	130	417	0	0	348	452	0	0	972	2
Norway	342	245	22	15	1,986	1,715	143	108	2,381	269
Netherlands	11,473	10,384	42	57	64,505	57,272	390	428	125,311	869
Poland-Dantzig	150	7	24	18	694	49	112	119	441	223
Romania	...	...	...	...	1) 33	1) 4	1) 31	1) 20	128	55
Switzerland	3,243	3,386	220	218	17,066	21,896	1,905	1,488	40,737	3,505
Czechoslovakia	152	152	247	196	675	862	1,173	1,279	1,554	2,555
Yugoslavia	302	571	2	2	1,241	1,074	20	15	4,676	53
Canada	6,883	5,315	77	66	12,639	13,221	705	432	81,891	1,241
Australia	251	240	—	—	1,303	1,082	—	—	2,813	—
Turkey	...	...	—	—	1) 9	1) 40	—	—	90	—
Union of South Afr.	...	...	...	...	1) 1,444	1) 1,089	1) 99	1) 75	1,369	238
Australia	648	150	9	4	7,207	5,736	64	31	12,454	99
New Zealand	15,604	15,252	...	...	101,109	100,661	2) 2	2) 2	185,722	0
Importing Countries:										
Germany	22	20	5,333	4,608	123	165	34,403	30,287	262	61,507
Belgo-Luxemb. E. U.	29	18	4,317	4,504	185	150	23,038	23,144	366	50,834
Spain	—	—	—	—	—	—	—	—	—	—
France	1,764	1,819	3,258	2,842	13,014	12,075	14,493	15,981	23,345	32,465
Greece	71	123	31	35	472	245	494	231	705	370
Hungary	42	31	0	0	399	364	0	0	767	2
Irish Free State	201	77	2	2	498	342	22	64	1,814	88
Portugal	11	4	15	22	73	64	99	123	121	346
United Kingdom	419	461	21,713	28,016	2,793	2,956	147,426	147,426	6,012	300,628
Sweden	—	—	139	212	—	—	1,056	1,669	—	3,530
U. S. S. R.	...	...	...	...	1) 2	1) 24	1) 410	1) 337	90	756
United States	68	143	4,808	4,257	529	589	30,197	24,352	1,135	59,851
Chile	...	...	...	...	2) 7	2) 15	2) 15	2) 13	26	44
Peru	—	—	...	...	—	—	...	...	—	648
Ceylon	—	—	18	13	—	—	97	75	—	220
India: by sea 4)	0	0	93	68	2	2	659	478	2	1,184
Java and Madura	—	—	...	...	—	—	1) 732	1) 542	—	1,733
Indo-China	...	...	...	...	2) 0	2) 0	2) 260	2) 198	2	602
Iraq	...	...	...	...	1) 11	1) 4	1) 18	1) 24	7	62
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 2	0	2
Japan	—	—	...	...	—	—	3) 35	3) 40	—	168
British Malaya	...	...	...	...	1) 7	1) 7	1) 176	1) 126	18	337
Palestine: Br. m. t.	...	...	...	...	2) 15	2) 55	2) 750	2) 470	57	1,845
Syria & Leb.: Fr. m. t.	49	11	49	51	271	134	463	560	470	957
Algeria	...	...	...	...	1) 18	1) 44	1) 4,731	1) 4,896	88	11,025
Egypt	...	...	...	...	1) 24	1) 7	1) 3,195	1) 3,003	44	7,771
French Morocco	—	—	...	...	—	—	2) 1,294	2) 1,268	—	3,675
Tunis	...	...	...	...	1) 18	1) 75	1) 1,310	1) 1,060	104	2,915
Totals	**50,271**	**44,793**	**41,616**	**46,294**	**278,787**	**259,596**	**274,966**	**265,175**	**583,834**	**562,063**

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1) Up to 31 May. — 2) Up to 30 April. — 3) Up to 31 March. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	June				Nine months (October 1-June 30)				Twelve months (Oct. 1-Sept. 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Cacao. — Thousand lb.									
Exporting Countries										
Grenada	769	388	—	—	7,231	7,848	—	—	8,228	—
Haiti	.	..	—	—	1) 2,619	1) 3,364	—	—	3,876	—
Santo Domingo		.	—	—	1) 27,668	1) 31,793	—	—	40,259	—
Brazil	.	.	—	—	3) 109,343	3) 150,988	—	—	279,988	—
Equador	...	..	—	—	1) 23,687	1) 33,054	—	—	45,096	—
Trinidad	...	...	—	—	1) 20,479	1) 22,769	—	—	27,805	—
Venezuela	.	..	—	—	2) 16,755	2) 16,852	—	—	29,198	—
Ceylon	758	357	—	—	7,275	4,868	—	—	6,102	—
Netherlands Indies Java and Madura	...	. .	—	—	1) 1,424	1) 2,401	—	—	3,995	—
Cameroon. Fr m t	708	1,014	—	—	51,950	47 971	—	—	52,927	—
Ivory Coast	13,631	7,780	—	—	106 160	100,809	—	—	108,840	—
Gold Coast	14,063	20,900	—	—	596,374	539,722	—	—	639,440	—
Madagascar	.		—	—	1) 434	1) 642	—	—	829	—
Nigeria and Cameroon Brit m t	...		—	—	1) 192,766	1) 162,512	—	—	201,931	—
São Thomé and Principe Islands	3,303	3,071	—	—	15,117	28,429	—	—	31,780	—
Togo. Fr m t	168	1,960	—	—	17,778	17,648	—	—	21,182	—
Importing Countries										
Germany	172	0	13,869	14,663	2,396	7	120,357	133 290	7	172,395
Austria	—	—	604	1,118	—	—	10,917	10,084	—	13 038
Belgo Luxemb E U	11	0	963	1,067	132	11	18,272	17 994	123	25,018
Bulgaria	—	—	44	90	—	—	1,107	1 349	—	1,559
Denmark	—	—	688	692	—	—	7,743	7,901	—	9,914
Spain	—	—	—	—	—	—	—	-	—	—
Estonia	—	—	57	60	—	—	500	708	—	844
Finland	—	—	11	18	—	—	225	236	—	304
France	22	0	7,877	9,687	522	9	74,018	78,269	9	104,114
Greece	—	—	425	223	—	—	2,606	2,674	—	3 497
Hungary	—	—	538	507	—	—	6,519	7,745	—	9,961
Irish Free State	—	—	179	295	—	—	3,027	3,056	—	3,349
Italy	—	—	3,018	1,252	—	—	11,565	18,179	—	21,050
Latvia	—	—	37	77	—	—	906	924	—	1,199
Lithuania	—	—	86	29	—	—	736	847	—	1,047
Norway	—	—	489	560	—	—	5,803	4,032	—	5,514
Netherlands	472	432	7,269	11,541	5 326	3,931	106,949	124 264	5,181	152,545
Poland Dantzig	—	—	1,232	1,257	—	—	11,680	10,950	—	14,035
Portugal	0	0	35	40	4	57	802	873	66	1,091
Romania	—	—	.	.	—	—	1) 2,676	1) 2,875	—	3,878
United Kingdom	527	734	4,943	10,002	5,979	5,073	222,222	261 989	8,494	276,108
Sweden	—	—	738	758	—	—	10,732	9,061	-	12,178
Switzerland	7	22	1,554	569	40	53	14,599	15,640	68	17,183
Czechoslovakia	—	—	1,773	1,142	—	—	23,953	22,562	—	27,055
Yugoslavia	—	—	209	99	—	—	1,993	1,499	—	1,845
U. S S R	—	—		. .	—	—	1) 12,086	1) 12,974	—	16,048
Canada	—	—	2,747	2,463	—	—	29,652	21,385	—	27,847
United States	—	—	39,326	16,070	—	—	556,360	453,567	—	580,159
Chile	—	—	.	...	—	—	2) 1,107	2) 1,389	—	1,784
Colombia	—	—	.	..	—	—	3) 450	...	—	...
Peru				...	4) 9	4) 15	4) 77	4) 146	26	705
Uruguay	—	—	51	134	—	—	505	688	—	1,027
Iran	—	—	.	.	—	—	2) 9	2) 24	—	20
Japan	—	—		...	—	—	3) 2,665	3) 2,150	—	4,248
British Malaya	...	. .		. .	1) 112	1) 110	1) 117	1) 75	141	108
Palestine: Br m t	—	—	...	...	—	—	2) 450	2) 478	—	785
Syria & Leb · Fr m t	—	—	0	0	—	—	7	13	—	13
Algeria	...	...	...	...	1) 95	1) 60	1) 287	1) 547	60	686
Egypt	—	—	...	...	—	—	1) 364	1) 395	—	496
French Morocco	—	—	. .	...	—	—	2) 86	2) 62	—	95
Tunis	—	—	...	...	—	—	1) 15	1) 18	—	35
Union of South Africa	—	—	...	..	—	—	1) 1,684	1) 2,619	—	3,322
Australia	13	11	55	163	37	57	13,849	11,755	104	12,403
New Zealand	—	—	...	...	—	—	2) 2,601	2) 2,648	—	3,353
Totals	**34,624**	**36,669**	**88,817**	**74,576**	**1,211,712**	**1,181,053**	**1,282,281**	**1,247,934**	**1,515,755**	**1,531,855**

1) Up to 31 May — 2) Up to 30 April. — 3) Up to 31 March. — 4) Up to 31 December.

Tea. — Thousand lb.

COUNTRIES	June				Twelve months (July 1-June 30)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Ceylon	19,079	20,097	0	0	202,290	223,530	0	0	—	—
China	...	...	...	...	1) 88,972	1) 71,234	1) 880	1) 657	—	—
Chosen	...	...	...	...	2) 130	2) 185	2) 18	2) 0	—	—
Taiwan	...	...	...	...	2) 18,836	2) 17,489	2) 79	2) 66	—	—
India: by sea 5)	11,023	12,963	214	174	299,691	313,419	4,021	5,199	—	—
» : by land 5)	...	...	...	...	3) 13,384	3) 13,287	3) 1,764	3) 1,878	—	—
Netherlands Indies:										
Java and Madura	...	...	...	...	1) 107,676	1) 107,315	1) 606	1) 915	—	—
Outer Provinces	...	...	—	—	1) 26,012	1) 26,330	—	—	—	—
Indo-China	...	...	...	...	2) 2,804	2) 2,463	2) 1,087	2) 1,429	—	—
Japan	...	...	...	...	1) 36,032	1) 30,223	1) 1,012	1) 437	—	—
Importing Countries:										
Germany	20	0	884	637	150	0	10 809	10,152	—	—
Austria	—	—	33	37	—	—	794	785	—	—
Belgo Luxemb. E. U.	0	0	55	46	2	2	668	564	—	—
Bulgaria	—	—	0	7	—	—	84	66	—	—
Denmark	—	—	90	73	—	—	1,252	1,120	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	7	7	—	—	99	95	—	—
Finland	—	—	15	20	—	—	293	276	—	—
France	0	2	284	198	15	18	3,280	2,855	—	—
Greece	—	—	15	44	—	—	395	445	—	—
Hungary	—	—	33	15	—	—	511	430	—	—
Irish Free State	306	0	4,623	1,975	340	24	22,869	22,434	—	—
Italy	—	—	46	9	—	—	225	196	—	—
Latvia	—	—	4	4	—	—	73	71	—	—
Lithuania	—	—	0	11	—	—	82	93	—	—
Norway	—	—	26	24	—	—	362	362	—	—
Netherlands	11	7	2,231	2,674	112	112	27,322	28,980	—	—
Poland Dantzig	0	0	317	317	2	2	4 081	3,461	—	—
Portugal	—	—	40	31	—	—	397	443	—	—
Romania	—	—	...	...	—	—	1) 688	1) 723	—	—
United Kingdom	5,703	5,326	29,216	29,507	70,804	72,067	439,361	486,313	—	—
Sweden	—	—	82	64	—	—	990	1,016	—	—
Switzerland	2	2	119	86	31	26	1,786	1,819	—	—
Czechoslovakia	—	—	60	55	—	—	1,226	1,166	—	—
Yugoslavia	—	—	24	29	—	—	401	381	—	—
U S S R	...	...	...	...	1) 8,534	1) 15,582	1) 32,159	1) 33,771	—	—
Canada	—	—	4,092	1,859	—	—	38,923	44,214	—	—
United States	—	—	7,372	5,172	—	—	92,270	83,917	—	—
Chile	—	—	...	...	—	—	1) 4,713	1) 3,657	—	—
Peru	—	—	...	...	—	—	4) 507	4) 842	—	—
Iraq	...	...	...	...	1) 9	1) 57	1) 6,415	1) 4,949	—	—
Iran	...	...	...	...	2) 0	2) 0	2) 15,232	2) 11,292	—	—
British Malaya	...	...	...	...	1) 1,085	1) 1,038	1) 4,775	1) 4,337	—	—
Manchukuo	—	—	...	...	—	—	2) 8,455	2) 6,819	—	—
Palestine. Br. m. t.	...	...	...	...	2) 0	2) 0	2) 653	2) 487	—	—
Syria & Leb.: Fr. m. t.	0	0	2	11	0	11	474	298	—	—
Turkey	—	—	...	...	—	—	1) 2,458	1) 1,468	—	—
Algeria	...	...	...	...	1) 4	1) 4	1) 3,477	1) 2,299	—	—
Egypt	—	—	...	...	—	—	1) 15,779	1) 12,763	—	—
French Morocco	...	...	...	...	2) 348	2) 216	2) 18,448	2) 15,082	—	—
Tunis	—	—	...	...	—	—	1) 3,080	6,087	—	—
Union of South Afr.	...	...	...	...	1) 637	1) 267	1) 13,991	1) 12,456	—	—
Australia	31	49	4,601	4,665	608	635	48,797	41,557	—	—
New Zealand	...	...	...	...	2) 132	2) 101	2) 8,927	2) 9,002	—	—
Totals	**36,175**	**38,444**	**54,485**	**47,751**	**878,640**	**895,637**	**847,048**	**870,124**	—	—

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1) Up to 31 May. — 2) Up to 30 April. — 3) Up to 31 March. — 4) Up to 31 December. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Coffee. — Thousand lb.

COUNTRIES	JUNI				TWELVE MONTHS (July 1-June 30)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Costa Rica	476	1,122	—	—	56,170	46,875	—	—	—	—
Cuba	...	...	—	—	3) 8,620	3) 3,913	—	—	—	—
Guadalupe	...	...	—	—	3) 705	3) 560	—	—	—	—
Guatemala	4,910	6,312	—	—	108,677	118,353	—	—	—	—
Haiti	...	...	—	—	1) 53,597	1) 73,134	—	—	—	—
Nicaragua	...	...	—	—	2) 23,788	2) 22,247	—	—	—	—
Santo Domingo	...	...	—	—	1) 25,867	1) 26,191	—	—	—	—
Salvador	...	...	—	—	1) 126,727	1) 94,834	—	—	—	—
Brazil	120,318	127,309	—	—	1,756,208	2,059,770	—	—	—	—
Colombia	...	...	—	—	3) 423,077	3) 388,495	—	—	—	—
Dutch Guiana	...	...	—	—	1) 6,638	1) 10,196	—	—	—	—
Peru	...	...	...	...	4) 4,561	4) 3,340	4) 4	4) 13	—	—
Aden: by sea	...	...	—	—	1) 8,605	1) 11,321	—	—	—	—
India, by sea 5)	670	880	24	0	18,193	25,761	128	0	—	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 72,501	1) 51,897	—	—	—	—
Outer Provinces	...	...	—	—	1) 136,588	1) 109,175	—	—	—	—
Indo-China	...	...	...	...	2) 765	2) 1,537	2) 141	2) 141	—	—
Ivory Coast	...	...	—	—	1) 13,552	2) 12,787	—	—	—	—
Kenya	904	2,247	—	—	39,143	45,914	—	—	—	—
Madagascar	...	...	—	—	1) 60,627	1) 40 995	—	—	—	—
Importing Countries:										
Germany	0	0	35,642	28,519	0	0	380,580	329,173	—	—
Austria	0	0	919	935	0	0	11,513	11,464	—	—
Belgo-Luxemb. E. U.	575	51	7,355	8,007	3,538	728	113,902	108,968	—	—
Bulgaria	—	—	84	106	—	—	1,217	1,100	—	—
Denmark	—	—	6,173	5,688	—	—	62,673	56,467	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	29	11	—	—	223	192	—	—
Finland	—	—	3,982	4,147	—	—	47,803	42,428	—	—
France	2	0	45,565	33,241	37	4	413,253	426,029	—	—
Greece	—	—	1,182	1,003	—	—	14,163	13,314	—	—
Hungary	—	—	362	278	—	—	4,319	4,398	—	—
Irish Free State	0	0	22	44	0	0	547	595	—	—
Italy	2	0	7,141	4,965	7	15	81,183	79,166	—	—
Latvia	—	—	33	15	—	—	342	249	—	—
Lithuania	—	—	37	13	—	—	359	412	—	—
Norway	—	—	3,042	1,918	—	—	38,784	41,515	—	—
Netherlands	315	55	4,727	2,520	2,515	6,839	64,884	91,580	—	—
Poland-Dantzig	0	0	1,076	628	15	9	12,553	11,718	—	—
Portugal	168	359	902	1,089	2,231	3,430	14,581	13,336	—	—
Romania	—	—	...	...	—	—	1) 6,815	1) 7,765	—	—
United Kingdom	564	1,036	1,100	1,243	15,126	23,473	45,435	52,270	—	—
Sweden	—	—	8,153	7,185	—	—	105,547	105,842	—	—
Switzerland	0	0	1,786	2,053	4	2	34,300	38,281	—	—
Czechoslovakia	—	—	1,936	2,055	—	—	24,877	24,714	—	—
Yugoslavia	—	—	968	1,779	—	—	14,599	15,210	—	—
U. S. S. R	—	—	...	...	—	—	1) 578	1) 1,129	—	—
Canada	18	11	2,831	3,477	278	214	38,951	39,196	—	—
United States	483	767	136,266	124,037	11,213	8,792	1,760,840	1,853,163	—	—
Chile	—	—	...	...	—	—	2) 5,864	2) 6,651	—	—
Uruguay	—	—	454	403	—	—	4,747	5,044	—	—
Ceylon	0	2	190	130	2	2	3,243	2,738	—	—
Iraq	...	...	...	...	1) 0	1) 0	1) 1,720	1) 1,047	—	—
Iran	...	...	...	...	2) 0	2) 0	2) 161	2) 154	—	—
Japan	—	—	...	...	—	—	1) 11,111	1) 10,307	—	—
British Malaya	...	...	...	...	1) 5,287	1) 4,837	1) 16,982	1) 14,564	—	—
Manchukuo	—	—	...	...	—	—	2) 370	2) 265	—	—
Palestine: Br m t	...	...	...	...	2) 0	2) 0	2) 2,584	2) 3,477	—	—
Syria & Leb.: Fr.m.t.	0	0	139	172	0	4	2,566	2,390	—	—
Turkey	—	—	...	...	—	—	1) 9,747	1) 10,428	—	—
Algeria	...	...	...	...	1) 4	1) 4	1) 27,699	1) 29,192	—	—
Egypt	—	—	...	...	—	—	1) 15,596	1) 15,421	—	—
French Morocco	—	—	...	...	—	—	2) 4,663	2) 5,201	—	—
Tunis	...	...	...	...	1) 0	1) 2	1) 2,959	1) 3,029	—	—
Union of South Afr	...	...	...	...	1) 7	1) 11	1) 29,650	1) 29,075	—	—
Australia	2	2	448	549	75	24	4,123	4,619	—	—
New Zealand	...	...	...	...	2) 0	2) 0	2) 403	2) 348	—	—
Totals	**129,407**	**140,153**	**272,568**	**236,210**	**2,984,948**	**3,195,685**	**3,439,282**	**3,513,778**	—	—

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1) Up to 31 May — 2) Up to 30 April — 3) Up to 31 March — 4) Up to 31 December. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

STOCKS

Total stocks of home-grown cereals and linseed in Canada.

PRODUCTS	July 1937	March 1937	July 1936	July 1935	July 1934
	Last day of month				
	1,000 centals				
Wheat	19,644	70,803	65,662	121,964	116,394
Rye	230	1,094	1,789	1,757	2,251
Barley	2,094	9,472	4,726	2,669	5,324
Oats	6,215	27,031	13,729	9,000	10,561
Linseed	260	497	151	175	264

Stocks of cereals, linseed, and potatoes in farmers' hands in Canada.

PRODUCTS	Last day of month					Last day of month				
	July 1937	March 1937	July 1936	July 1935	July 1934	July 1937	March 1937	July 1936	July 1935	July 1934
	Percentage of total production					Stocks in 1,000 centals				
Wheat	1.7	20	2.0	3	3	2,399	28,159	3,312	4,717	5,240
Rye	1.8	9	2.8	1.5	1	44	207	152	44	21
Barley	2.1	16	5.0	3	3	708	5,374	2,016	971	883
Oats 1)	5.6	25	7.9	6	6	5,179	23,147	10,603	6,824	6,573
Linseed	0.6	12	0.5	0.5	0.5	6	123	4	2	2

1) Canadian bushel converted to 32 lb

Total stocks of wheat in different locations in Canada.

LOCATION 1)	July 1937	March 1937	July 1936	July 1935	July 1934
	Last day month				
	1,000 centals				
On farms	2,399	28,159	3,312	4,717	5,240
In country and interior terminal elevators, Western division	2,062	15,462	18,810	29,007	39,091
In terminal elevators Lake Superior 2)	4,087	6,825	15,292	42,870	35,633
In elevators Pacific Coast 3)	2,596	4,773	5,242	5,327	5,751
In Port Churchill elevators	369	369	1,487	1,434	1,485
In Eastern region elevators	3,589	8,579	13,421	25,659	18,953
In flour mills	2,857	3,916	5,131	5,186	5,606
In transit (railways and afloat)	1,685	2,720	2,967	7,764	4,635
TOTAL WHEAT AS GRAIN IN CANADA.	**19,644**	**70,803**	**65,662**	**121,964**	**116,394**

1) Quantities afloat for unloading at Canadian ports are included in stocks in terminal elevators Lake Superior or in Eastern elevators. — 2) Fort William and Port Arthur. — 3) Vancouver, New Westminster, Victoria, Prince Rupert. — 4) Port Churchill.

Total wheat in the United States 1).

Location	First day of month				
	July 1937	April 1937	July 1936	July 1935	July 1934
	1,000 centals				
On farms	13 128	43 034	26 393	26,603	37,510
In interior mills and elevators	7 387	24,161	13 486	19,079	28,890
Commercial wheat in store	9 718	20,845	12 373	13,171	48,329
In merchant mills and attached elevators 2)	27 140	37,876	26 387	27 540	45,393
Stored for others in merchant mills 2)	4 600	1 714	3,967	2,174	4 475
Total U S wheat as grain	*61 973*	*127 630*	*82 606*	*88 567*	*164 597*
Flour (in terms of grain) in merchant mills 2)	11 404	12,275	12 887	11 046	11 920
Total U S wheat	*73 177*	*139,905*	*95 493*	*99 613*	*176 517*
Canadian wheat in store in bond in the U S	3 187	7,213	9 368	5 567	6 073
Wheat of other origin in store in bond in the U S	0	0	0	867	0
TOTAL WHEAT IN THE U S	**76,354**	**147 118**	**104,861**	**106,047**	**182,590**

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1) Incomplete data wheat in transit that has not been purchased by merchant millers and wheat-flour other than that in mills, are not included Also wheat "in transit to merchant mills and attached elevators", and stocks of wheat "bought to arrive" at merchant mills, have been omitted, because the greater part of this wheat is already included in the data given of stocks at these mills — 2) The figures of the Bureau of Census, partial quarterly census are raised to represent all mills

Wheat and wheat-flour held by commercial mills in the United States 1)

Location	Last day of month				
	June 1937	March 1937	June 1936	June 1935	June 1934
	1,000 centals				
Wheat stocks the property of commercial millers 2)					
Wheat held in mills, and mill elevators attached to mills	25 321	35 452	24 567	25,585	42,034
Wheat in country or terminal elevators not attached to mills	4,019	8,058	5,049	5 650	11,932
Total	*29,340*	*43 510*	*29 616*	*31 235*	*53 966*
Wheat flour in mills and warehouses, and in transit, sold and unsold	7,395	7,985	8,339	7,132	7,672
Wheat stored for others in mills and mill elevators	4,292	1,604	3 693	2,020	4,144
GENERAL TOTAL 3)	**44,272**	**56,602**	**45,307**	**43,516**	**69,148**

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1) Partial census by the "Bureau of Census", including mills accounting for over 90 % of the total capacity of all commercial mills — 2) For wheat "in transit" etc, see note 1 in preceding table — 3) Including flour in terms of grain.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	August 1937	July 1937	June 1937	August 1936	August 1935
	Friday or Saturday nearest 1st of month				
	1,000 centals				
WHEAT:					
Canadian in Canada	17,504	22,618	29,315	59,696	112,073
U. S. in Canada	74	35	0	0	0
U. S. in the United States	53,600	9,718	10,253	40,383	20,843
Canadian in the United States	2,467	3,187	4,810	11,470	6,304
Of other origin in the United States	0	0	0	0	469
Total	*73,645*	*35,558*	*44,378*	*111,549*	*139,689*
RYE:					
Canadian in Canada	122	172	354	1,595	1,636
U. S. in Canada	83	47	53	0	0
U. S. in the United States	665	787	1,139	3,405	3,868
Canadian in the United States	0	0	0	193	16
Of other origin in the United States	0	0	0	0	1,777
Total	*870*	*1,006*	*1,546*	*5,193*	*7,297*
BARLEY:					
Canadian in Canada	1,346	1,959	2,396	2,499	1,632
U. S. in Canada	0	0	0	0	0
U. S. in the United States	2,509	2,260	2,819	4,728	2,512
Canadian in the United States	231	170	568	187	220
Of other origin the United States	0	0	0	0	172
Total	*4,086*	*4,389*	*5,783*	*7,414*	*4,536*
OATS:					
Canadian in Canada	983	1,303	1,547	2,708	2,051
U. S. in Canada	0	0	0	0	0
U. S. in the United States	1,075	634	1,807	12,436	2,408
Canadian in the United States	0	0	0	0	0
Of other origin in the United States	0	0	0	0	0
Total	*2,058*	*1,937*	*3,354*	*15,144*	*4,459*
MAIZE:					
U. S. in Canada	1	1	1	108	233
Of other origin in Canada	2,290	1,516	980	457	1,401
U. S. in the United States	4,158	3,508	2,417	2,417	3,149
Of other origin in the United States	1,337	75	18	0	873
Total	*7,786*	*5,100*	*3,416*	*2,982*	*5,656*

Quantities of cereals on ocean passage with first destination Europe.

PRODUCTS	August 1937	July 1937	June 1937	August 1936	August 1935
	Saturday nearest 1st of month				
	1,000 centals				
Wheat (and flour in terms of grain)	15,336	20,501	24,682	12,355	10,142
Rye	58	427	1,066	336	254
Barley	1,292	1,188	1,344	1,564	1,420
Oats	611	1,014	618	592	358
Maize	17,861	14,568	12,682	14,654	14,549

AUTHORITY: *Broomhall's Corn Trade News.*

Cereals in commercial elevators and mills in Germany 1).

PRODUCTS	Last day of month				
	July 1937	June 1937	May 1937	July 1936	July 1935
	1,000 centals				
WHEAT:					
Grain	6,469	10,446	13,578	12,125	23,396
Flour for bread	946	1,671	1,570	1,828	2,884
TOTAL 2)	*10,783*	*12,767*	*15,759*	*14,663*	*27,402*
RYE:					
Grain	10,761	11,356	14,295	7,427	21,429
Flour for bread	1,085	1,232	1,365	533	1,528
TOTAL 2)	*12,357*	*13,168*	*16,301*	*8,208*	*23,676*
BARLEY	2,582	1,012	1,373	2,357	2,767
OATS	1,812	2,130	2,381	2,302	2,235

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries). — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	August 1937	July 1937	June 1937	August 1936	August 1935
	1,000 centals				
WHEAT:					
Grain	6,288	5,376	5,592	4,632	4,656
Flour as grain	912	1,056	1,032	768	624
TOTAL	*7,200*	*6,432*	*6,624*	*5,400*	*5,280*
BARLEY	760	920	1,520	1,000	580
OATS	224	208	224	176	330
MAIZE	2,256	2,616	2,784	2,328	2,256

1) Imported cereals.
AUTHORITY: *Broomhall's Corn Trade News.*

Commercial cereals in Antwerp, Rotterdam and Amsterdam 1).

Products and location	Saturday nearest 1st of month 2) August 1937	July 1937	June 1937	August 1936	August 1935
	1,000 centals				
Wheat:					
Antwerp	1,528	1,313	1,435	496	449
Rotterdam	1,127	1,666	1,853	530	238
Amsterdam	10	14	23	28	0
Rye					
Antwerp	13	27	30	28	61
Rotterdam	18	61	94	39	143
Amsterdam	0	0	0	0	0
Barley:					
Antwerp	81	227	406	40	250
Rotterdam	11	11	13	22	9
Amsterdam	0	0	0	0	13
Oats					
Antwerp	98	27	32	44	71
Rotterdam	4	0	0	12	44
Amsterdam	15	17	19	32	22
Maize					
Antwerp	8	143	246	20	36
Rotterdam	44	132	143	14	159
Amsterdam	69	51	16	2	26

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1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES *Nederlandsche Silo-, Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam

Cotton stocks on hand in the United States.

Location	Last day of month July 1937	June 1937	May 1937	July 1936	July 1935
	1,000 centals				
In consuming establishments	6,295	7,567	8,861	4,383	3,838
In public storage and at compresses	13,713	15,100	17,523	19,166	27,930
Total	*20,008*	*22,667*	*26,384*	*23,549*	*31,768*

Carry-over of cotton in the United States.

Total stocks of cotton as on 31 July include, besides the monthly information on stocks in consuming establishments, in public storage and at compresses, also stocks in other positions, namely: cotton for export on shipboard but not cleared; cotton coastwise; cotton in transit to ports, interior towns, and mills; cotton on farms and in private storage. These stocks in other positions amounted to 1,954,000 centals in 1937 against 2,808,000 centals in 1936, 3,310,000 centals in 1935 and 4,681,000 centals in 1934, making total stocks of 21,962,000; 26,357,000; 35,078,000 and 38,170,000 centals in the four years mentioned.

Cotton stocks at Bombay and Alexandria.

LOCATION	Thursday nearest 1st of month				
	August 1937	July 1937	June 1937	August 1936	August 1935
	1,000 centals				
Bombay 1)	3,240	3,940	4,266	3,116	2,404
Alexandria 2)	460	763	1,157	613	541

1) Stocks held by exporters, dealers and millers. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES: *East Indian Cotton Assn* and *Commission de la Bourse de Minet el Bassal*

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	August 1937	July 1937	June 1937	August 1936	August 1935
	1,000 centals				
Great Britain:					
American	1,375	1,626	1,866	1,391	847
Argentine, Brazilian	646	746	711	599	221
Peruvian	278	221	195	165	309
East Indian	403	165	367	354	213
Egyptian, Sudanese	747	765	961	852	982
W. Indian, W. and E. African, and other	332	302	269	163	156
TOTAL	*3,781*	*3,825*	*4,369*	*3,524*	*2,728*
Bremen:					
American	495	563	666	550	566
Other	258	226	231	282	304
TOTAL	*753*	*789*	*897*	*832*	*870*
Le Havre:					
American	540	691	824	468	321
French colonial	27	23	26	20	14
Other	142	126	94	183	89
TOTAL	*709*	*840*	*944*	*671*	*424*
Total Continent 1):					
American	1,164	1,378	1,555	1,410	1,293
Argentine, Brazilian, Peruvian	168	137	116	283	214
East Indian	97	114	118	237	237
Egyptian	70	79	94	169	203
W. Indian, W. and E. African, and other	166	152	154	168	129
TOTAL	*1,665*	*1,860*	*2,037*	*2,267*	*2,076*

1) Including Bremen and Le Havre.

AUTHORITIES: *Liverpool Cotton Assn.* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

PRICES

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

DESCRIPTION	13 August 1937	6 August 1937	30 July 1937	23 July 1937	AVERAGE July 1937	AVERAGE August 1936	AVERAGE August 1935	Commercial Season 1) 1936-37	Commercial Season 1) 1935-36
Wheat.									
Budapest (*a*) Tisza wheat, 78 kg p hl (pengö p quintal)	20 40	21 05	21 12	21 35	20 78	15 07	15 49	19 04	16.78
Braila Good quality (lei p quintal)	7) 500	7) 480	7) 500	7) 500	7) 488	453	396	* 486	* 442
Winnipeg No 1 Manitoba (cents p 60 lb)	137 7/8	131	141 1/8	145 1/8	146	101	65	122 1/8	85
Chicago No 2 Hard Winter (cents p 60 lb)	7) 119 1/2	7) 118 1/2	7) 123 5/8	7) 128 5/8	7) 129 3/4	119 1/8	103 1/8	130	109 3/4
Minneapolis (cents p 60 lb)									
No 1 Northern	129 3/8	130 1/8	135 7/8	139 1/4	145 7/8	133 1/4	* 121	141	119 5/8
No 2 Amber Durum	111 1/4	113 3/8	116	119 3/8	6) 123	141 1/4	116	138 1/8	111 7/8
New York No 2 Hard Winter (cents p 60 lb)	7) 134 1/2	7) 134 1/8	7) 139 1/8	7) 140 7/8	7) 144 1/2	125 1/8	114 5/8	142 3/8	124 1/4
Buenos Aires (*a*) Barletta, 80 kg p hectol (paper pesos p quintal)	14 10	14 00	13 95	14 30	14 25	12 02	7 32	12 28	9 53
Karachi White Karachi 2% barley 1½% impurities (rupees p 656 lb)	30-6-0	31 3-0	31-0-0	31-12-0	31 15-0	28-12-6	22-5 10	31-4-11	24-7-6
Berlin Home grown (free at Brandenburg stations, Rm p quintal) 2)	7) 20 10	7) 19 40	20 80	20 80	20 80	20 40	19 96	20 52	20 53
Hamburg (c i f Rm p quintal)									
No 1 Manitoba	14 72	14 40	14 69	14 91	8) 15 14	11 53	* 9 25	13 32	9 51
Barusso (80 kg p hl)	13 58	13 76	13 63	13 77	9) 13 62	11 04	6 99	11 90	8.74
Antwerp (francs p quintal)									
Home grown	142 00	145 00	147 00	147 00	145 40	128 25	79 60	135 40	100 90
No 1 Manitoba Atlantic (in bond)	166 00	173 00	180 00	181 00	176 10	129 35	107 80	154 50	110 80
Barusso (in bond)	10) 160 00	10) 163 50	165 00	10) 165 00	161 60	124 35	85 50	141 05	103 10
Paris Home grown (delivery regional depots 76 kg p hl frs p quintal) 3)	157 00	157 00	157 00	157 00	157 00	143 00	88 00	149 35	91 30
London (Mark Lane) Home grown (sh p 504 lb on the farm)	42/6	43/-	43 6	43 6	43 3	*34 10	19 10 3/4	40 1 3/4	27/5 1/4
Liverpool and London (c i f parcels, shipping current month sh p 480 lb)									
Danubian (on sample)	11)40/9	11)41/6	11)41/-	11)42 -	11)42/-	32/9 3/4	n. q	* 38/1 1/4	* 25/5 1/2
Russian (on sample)	43/7 1/2	45 6	n q	n q	n q	n q	25 7 1/4	n q	* 29/-
No 1 Northern Manitoba (Atlantic)	49/6 3/4	49 -	50 10 1/2	51 3	52 2	37/11 1/4	31/7 3/4	* 46 0 1/4	32/9
No 1 Northern Manitoba (Pacific)	n q	n q	n q	n q	n q	38/2 1/4	30 11 1/2	* 45/9 3/4	32/5 1/4
No 3 Northern Manitoba (Pacific)	12)47/-	12)46 6 3/4	12)48 7 1/2	12)49 7 1/2	12)50/5 3/4	36 10 1/2	28/2 1/2	44 1	30/5 1/2
No 2 Hard Winter	13)44/6	13)45/9	13)45/9	13)46 6	13)47 10	n q	n q	n q	n q
Rosafé (afloat) 4)	14)41 3	14)41/9	14)41 10 1/2	14)43 -	14)*42/9	14)34/4 1/2	15)25/3	* 39/3 3/4	* 28/9
White Karachi, choice	42/-	42 6	43 9	44 6	44/7	16)37/7 1/2	n q	42 5 3/4	* 31/7 1/2
West Australian (cargoes)	44 -	42 6	45 -	45/6	46/4	16)39/1 3/4	27/4	43/2 1/2	* 30/2 1/2
New South Wales (cargoes)	44/-	42/6	45 -	45 6	46 4	38/4	26/5 1/2	43 0 1/2	* 29/9
Milan (*b*) Home grown, soft, "Buono mercantile" 76 78 kg p hl (lire p q) 5)	17) 138 00	138 00	138 00	138 00	138 00	121 20	103 40	125 30	114 20
Rye.									
Berlin Home grown (free at Brandenburg stations, Rm p quintal) 2)	7) 18 40	7) 18 40	7) 18 40	7) 18 40	7) 18 10	7) 15 70	7) 15 70	16 82	16 68
Hamburg Plata, 72 73 kg p hl (c i f, Rm p quintal)	n q	n q	13 13	13 34	18) 13 22	6 36	4 38	10 30	5 27
Budapest Pest rye (pengö p quintal)	18 75	19 60	19 80	20 40	19 32	12 42	14 19	17 17	14 44
Warsaw Good quality (zloty p quint)	7) 24 00	7) 22 75	7) 23 25	7) 21 50	23 75	14 36	10 77	21 58	13 26
Winnipeg No 2 (cents p 56 lb)	90 3/8	89 1/2	160	153	19) 149 5/8	66 1/2	36 7/8	98 3/4	43 1/4
Minneapolis No 2 (cents p 56 lb)	80 1/4	82 3/8	82 7/8	88 7/8	92 1/8	81 1/4	45 3/4	99 3/8	53 1/8
Groningen (*c*) Home grown (fl p quintal)	6 75	n q	n q	n q	n q	* 7 60	* 6 37	* 8 12	* 7 08

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* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal*

a) Thursday prices — *b*) Saturday prices — *c*) Prices on preceding Tuesday

1) August July — 2) As from February 1937 N° 2 Hard quality basis 80 kg p hl — 3) Fixed producers prices for the *ce region* of Berlin See *Govt Measures* No 2, p 57, and *Crop Report* Aug 1936, p 609 and July 1937 p 571 — During August 1935, spot quotations in the free market, Sept 1935 Aug 1936 prices in the regulated market, delivery current nth, subsequently, fixed producers' prices (see note in *Crop Report*, Sept 1936, p 691) — 5) Commencing Aug 1936 prices e at mills in Milan see also *rop Report*, June 1937, p 474 — 6) 16 July 123 3/4 9 July 123 3/8 2 July 126 3/4 — 7) New p — 8) 16 July 15 51 — 9) 16 July 13 70 — 10) "Bahia" quality — 11) Bulgarian, 16 July 43/- 9 July 42/3, 2 July: 9 — 12) N° 3 Northern Manitoba, Atlantic, 16 July 52/3, 9 July 50/9 2 July 51/1 — 13) Gulf shipment — 14) New p shipping January February — 15) Shipping August September — 16) Shipping September — 17) Price on 11 August — 8) 16 July: 13 39 — 19) 25 June 123 average June 113

DESCRIPTION	13 August 1937	6 August 1937	30 July 1937	23 July 1937	AVERAGE			Commercial Season 1)	
					July 1937	August 1936	August 1935	1936-37	1935-36
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	n. q.	21.50	n. q.	n. q.	n. q.	*6) 19 50	n. q.	* 25.12	* 15.97
Braila: Average quality (lei p. quintal).	6) 340	6) 350	355	370	368	6) 231	6) 204	* 321	242
Prague: Malting, good quality, 68 kg p hl (crs p. quintal) 2)	6) 130.00	6) 130 00	n q	n. q.	n. q.	6) 125.00	6) 125.00	* 135.05	* 131.70
Winnipeg. No. 4 Western (cents p. 48 lb.).	58 7/8	58 1/4	65 3/4	68 1/2	67 5/8	56 3/4	30 1/4	66 3/4	34 3/4
Chicago: Feeding (on sample; cents p. 48 lb.)	52	50	55	61	59 1/4	59 3/4	40 3/4	74 1/4	45 1/4
Minneapolis: No. 2 Feeding (c. p. 48 lb.) 3)	52	55	55	57	60 1/4	74 1/4	38 5/8	77 1/2	39 1/8
Berlin: Home grown fodder (free at Brandenburg stations; Rm. p. quint.) 4).	6) 16 50	6) 16.50	6) 16 50	6) 16 50	6) 16.30	6) 16.00	6) 16.00	16.94	16.98
Antwerp: Danubian (in bond; francs p. q.)	109 00	111.00	112.50	113 00	111 90	90.25	71.80	107.75	74.10
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	n q.	n. q.	n. q.	n q.	*n. 39/-	n. q.	*6) 41/6	* 41/2	38/3
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	n. q	n. q.	n. q.	n. q.	n. q.	19/9 1/2	* 14/-	* 23/5	n. q.
Russian (Azoff, Black Sea)	24 9	26/6	n. q	n. q.	n q	n q	13/9 1/2	n. q.	* 14/10
Canadian No. 3 Western	27 6	29 -	30/1 1/2	30 -	30 1 1/2	26 2 1/2	15 10 1/4	* 27/9	18/0 1/2
Californian malting (sh. p. 448 lb)	37 6	41 -	7) 41/6	7) 42/6	7) 41 7	36/9	21/3 1/2	* 40/6	24/8 3/4
Plata (64-65 kg. p. hl.)	8) 25/8 1/4	8) 25 7 1/2	8) 26 -	28 9	* 27/6	20/1	14/2 1/2	25/0 3/4	15/11 1/2
Calcutta (f a q)	32/3	32/6	32 -	31/9	9) 31/6 1/2	n q	n q	* 32/-	n q
Karachi (f a q)	32/-	32/6	32 -	31/9	10) 31/9	n. q.	n q	* 32/1 1/4	n q.
Persian (Iraquian)	6) 24/6	6 25/9	6) 26 3	6) 26 -	26 -	19/5 1/4	* 13/11	23/11	15/4 1/4
Groningen (*a*): Home-grown, winter (fl. p q.)	7 30	7 47	8.00	7 87	8.01	6) 5 65	*6) 4.01	7.68	4.91
Oats.									
Braila: Good quality (lei p. quintal).	n. q	n. q	n. q.	n q	* 367	230	* 270	* 274	* 294
Winnipeg: No. 2 White (cents per 34 lb.)	54 5/8	50 3/8	55	62 5/8	63 1/4	49	36 3/8	52 7/8	34 3/4
Chicago: No. 2 White (cents per 32 lb)	31 1/2	31 1/4	31 1/2	36 1/4	45 1/2	45 3/4	32 1/2	49 3/4	32 1/4
Buenos Aires (*b*): Current quality (paper pesos p. quintal)	6.30	6.25	6.25	6.35	6.33	6.32	5.79	6.25	* 6.38
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quint.) 4)	6) 15.80	6) 15.80	17.60	17.60	17.60	16,70	16.90	16.77	16.79
Paris: Home-grown, black and other (delivery regional depots; frs. p. quintal).	120.00	114 50	11) 115 00	11) 115.50	* 116.25	90 35	40.80	115 80	66.40
London (Mark Lane): Home-grown, white (sh. p. 356 lb., on farm)	6) 28 -	6) 26/6	28/6	28 6	28/1	20 9	18/-	23/9 3/4	18/7 1/2
Liverpool and London (c.i.f. parcels; shipping current month; sh. p 320 lb.).									
Canadian, No. 2 Western (Atlantic)	12) 26 1 1/2	26/9	27/9	n. q.	n q.	23/11 1/2	19/3	23/4 1/2	18/7 1/2
Plata (f. a. q.)	8) 16 7 1/2	6) 16 6	17/3	17/6	17/7	15/4	* 13/10	16/3 3/4	14/5
Milan (*c*) (lire p. quintal):									
Home-grown	13) 101 50	101.50	101 50	101 50	102.70	88 10	* 88.35	99.60	* 97.10
Foreign	13) 98 00	98.00	98.00	98.00	98.90	91.40	75 00	100.45	92.60
Maize.									
Braila: Average quality (lei p. quintal).	345	n q	350	340	330	278	280	* 264	243
Chicago: No 3 Yellow (cents p. 56 lb.).	103 1/2	108 1/2	101	109 3/4	119 1/4	113 1/8	82 1/4	103 3/8	72 5/8
Buenos Aires (*b*): Yellow Plata (paper pesos p. quintal)	6 57	6.47	6.45	6.60	6.57	6.13	4.40	5.85	4.51
Antwerp (in bond; francs p. quintal):									
Yellow Plata	95.50	93.00	95.00	95 50	92.25	85.25	53.70	78.65	56.25
Cinquantino (Argentine "Cuarentino")	101 00	99,00	101.00	102.00	101.20	87.50	55.50	83.10	60.45
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):									
Danubian	n. q.	n. q.	n. q.	n. q	* 26/10	n. q.	n. q.	* 23/5	* 16/11
Yellow Plata	26/6	26/-	26/7 1/2	26/9	26/6	23/11 1/2	14/11	22/4	16/0 1/2
No. 2 White flat African	26 -	14) 26/3	14) n. 26/6	14) n. 26/6	26/4	n. q.	16/-	n. c.	* 17/-
Milan (*c*): «Alto Milanese» (lire p. quint.) 5)	13) 82 00	82.00	82.00	82.00	82.00	93.10	81.50	85.55	81.75

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats, August-July; maize, May-April. — 2) Monopoly price, paid to producers, for delivery Prague; see this *Crop Report* for Aug. 1936, p. 609 3) From August 1936, delivered barley only quoted. — 4) Fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, No. 2, p. 57, and *Crop Report* for Aug. 1936, p. 609. — 5) October to December 1936. maximum fixed price, free at station in Milan; subsequently, free at producer's station. — 6) New crop — 7) Californian, Nº 1 Brewing; shipping August-October. — 8) New crop; shipping January-February — 9) 16 July: 32/3 9 July: 31/-; 2 July: 30/9. — 10) 16 July: 32/7; 9 July: 31/6; 2 July: 31/3. — 11) September delivery — 12) Shipping September. — 13) Price on 11 August. — 14) Afloat.

DESCRIPTION	13 August 1937	6 August 1937	30 July 1937	23 July 1937	Average			Commercial Season 1)	
					July 1937	August 1936	August 1935	1936	1935
Rice (milled).									
Valencia (a) No 3 Belloch (pesetas p quintal)	n q	n q	n q	n q	n q	n q	58 50	* 57 30	56 60
Milan (b) (lire p quintal)									
Vialone, oiled 2)	5) 180 00	n q	n q	n q	n q	174 00	150 30	177 30	159.20
Maratelli, oiled 2)	5) 158 00	n q	n q	n q	n q	159 50	131 10	155 05	136 60
Originario, white	5) 131 00	131 00	131 00	133 00	129 60	125 00	129 10	125 65	121 75
Rangoon (rupees and annas p 7500 lb)									
No 2 Burma						252-8	248-0	264- 6	253-8
Small mills specials						233-2	226 6	223- 5	227-4
Big mills specials						224-6	220-8	214-12	219-9
Saigon (Indo chinese piastres p quintal)									
No 1 Round white 25 % brokens			8 29	8 20	6) 7 72	5 25	4 14	4 96	4 18
No 2 Japan 40 % brokens			7 96	7 88	7) 7 35	4 98	3 82	4 74	3 96
Marseilles (a) No 1 Saigon (c i f frs p quintal)	113 00	112 00	110 00	105 00	100 40	66 25	* 58 00	63 65	54 80
London (a) (c i f shillings p cwt)									
No 3 Spanish Belloch oiled	n q	n q	n q	n q	n q	n q	13/-	* 10/4 1/2	* 12/7
No 6 Italian good oiled	n q	n q	n q	n q	n n	n q	n q	n q	* 14/0 1/2
American Blue Rose extra fancy	8) 16 6	8) 16 6	17 10 1/2	17 10 1/2	17/11 1/8	n q	n q	18/4 1/4	* 15/5 3/4
No 2 Rangoon or Bassein (Burma)	9 6	9 4 1/2	9/0 3/4	9 -	8/11 3/4	8/	7/5 1/2	7/9 3/4	7/8
No 1 Saigon	9 9	9 9	9/2 1/4	9/0 3/4	8/10 1/4	9/-	7/3 1/4	8/0 1/4	7/5 3/4
Siam Super white	11/6	10/10 1/2	10/6	10 9	10 2 1	9/3	9 3 3/4	9/0 1/2	9/2 3/4
Tokyo Chumai (brown Japanese average quality, yen p koku)	32 60	32 30	32 80	33 00		32 52	30 34	30 70	29 87
Linseed.									
Buenos Aires (a) Current quality (paper pesos p quintal)	16 10	16 00	15 80	16 15	15 88	15 60	12 05	14 34	12 28
Bombay Bold (rupees p cwt)	8 2 6	8 1-3	8-1-6	8- 5-0	8- 2-8	8- 7-6	6-8-2	7-6-7	6-10-8
Antwerp Plata (in bond frs p quint)	192 00	189 00	189 00	189 00	187 30	177 00	137 10	162 25	127 55
London (c i f £ p long ton)									
Plata (delivery Hull)	13 5 0	13- 5-0	13 3-9	13- 7-6	13- 3-0	12-5 9	9- 7-9	11- 6-4	9-13-2
Bombay Bold	15 11-3	15 12-6	15- 8-9	15 15-0	15-10-3	15-1-10	11-15 0	13-12-1	12- 5-5
Duluth No 1 Northern (futures cents p 56 lb)	9) 204	9) 204 1/2	9) 205 1/2	9) 205 1/8	10) 204 3/8	210 1/4	156 7/8	191	172 1/4
Cottonseed.								1935 36	1934-35
Alexandria (piastres p ardeb)									
Upper Egypt	64 4	67 7	69 5	69 2	69 8	* 81 0	62 5	69 7	62 0
Sakellaridis	58 9	62 2	64 0	63 6	64 8	n q	58 5	* 64 0	57 7
London Sakellaridis (c i f delivery Hull £ p long ton) 4)	6-15 0	7-1-3	7-1-3	7- 1-3	7- 3-3	*n 8 15 0	n 6 1-9	n 6-13-7	n 5-18-7
Cotton.								1936 3	1935 36
New Orleans Middling (cents p lb)	10 63	11 25	11 21	11 66	12 09	12 07	11 33	12 78	11 64
New York Middling (cents p lb)	10 70	11 28	11 23	11 80	12 22	12 22	11 43	12 91	11 74
Bombay (rupees p 784 lb)									
Broach f g (futures)	11)188-4	11)193-12	11)190-8	11)204-8	11)206-10	11)220-10	*11)226 0	224 14	210- 4
Broach f g (spot)	189-0	195-0	194-0	207-0	208-10	225-4	226-0	* 228- 4	* 219- 0
Oomra fine (spot)	n q	n q	186-0	196-0	201- 0	n q	198-8	* 214-14	198-12
Alexandria (talaris p kantar)									
Sakellaridis f g f	17 50	18 15	18 25	18 55	18 83	17 82	14 46	19 22	16 11
Ashmuni f g f	n 14 55	n 15 40	n 15 05	n 15 90	16 14	13 45	13 02	15 19	13 61
Bremen Middling (U S cents p lb)	12 84	13 62	13 54	14 31	14 50	14 61	13 56	15 01	13 88
M g Broach f g (pence p lb)	n 5 85	n 5 85	n 5 85	n 5 90	n 5 99	n 5 65	n 5 97	n 5 78	n 5 86
Le Havre Middling Gulf (frs p 50 kg)	390 50	422 00	421 50	450 00	* 436 60	251 60	234 30	366 60	240 00
Liverpool (pence per lb)									
Middling, fair	n 7 13	n 7 40	n 7 32	n 7 80	n 7 88	n 7 94	n 7 35	n 8 26	n 7 58
Middling	5 93	6 20	6 12	6 60	6 68	6 84	6 45	7 11	6 53
São Paulo, g f	6 08	6 35	6 30	6 78	6 85	6 81	6 59	7 21	6 81
Broach, good staple f g	n 5 04	n 5 21	n 5 15	n 5 54	n 5 61	n 5 38	5 36	n 5 71	5 43
C P Oomra, superfine	5 22	5.32	5 20	5 59	5 66	5 60	5 48	5 85	5 61
Egyptian Sakellaridis, f g f	9 28	9 48	9 05	9 75	9 72	10 71	8 06	10 79	9 18
Upper Egyptian, f g f	8 58	8 85	8 70	9 43	9 51	8 09	7 26	8 46	7 49

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* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal*. — a) Thursday prices — b) Saturday prices

1) Cottonseed Sept.-Aug , cotton Aug July — 2) Producers' prices, f o r from 22 Oct 1936 to 20 Feb 1937, subsequently, producers' prices, *free* at wholesalers' stores including sacks — 3) As from June 1936, ' London Standard — 4) Prices for spot, delivery London, as from 15 Jan 1937 — 5) Price on 11 August — 6) 16 July 7 79 9 July 7 27 2 July 7 05 — 7) 16 July 7 38, 9 July 6 85 2 July 6 69 — 8) New crop shipping October November — 9) September futures — 10) July futures — 11) July August futures

Description	13 August 1937	6 August 1937	30 July 1937	23 July 1937	Average				
					July 1937	August 1936	August 1935	Commercial Season 1936	Commercial Season 1935
Bacon.									
London, Provision Exchange (*a*) (shillings, p. cwt.):									
English, No. 1, lean sizable	106/-	106/-	101/-	98/-	95/-	98/9	87/10	91/9	89/11
Danish, No. 1, sizable	105/-	105/-	100/-	100/-	95/7	100/-	87/10	93/8	88/6
Irish, No. 1, sizable	106/6	106/6	101/6	99/6	96/1	98/1	86/6	91/10	88/8
Lithuanian, No 1, sizable	100/-	100/-	94/-	94/-	89/2	92/-	80/10	84/10	82/1
Dutch, No. 1, sizable	105/-	105/-	100/-	100/-	94/7	97/-	84/2	89/7	85/4
Polish, No. 1, sizable	100/-	100/-	94/-	94/-	89/2	92/-	78/10	84/9	80/-
Swedish, No. 1, sizable	105/-	105/-	99/-	99/-	94/2	97/-	84/2	89/5	85/2
Canadian, No. 1, sizable	100/-	100/-	94/-	94/-	89/2	92/-	78/10	84/-	79/3
Butter.									
Copenhagen (*b*): Danish (crs. p. quint.).	220.00	220.00	220.00	220 00	210.80	225.50	187.00	207.15	192.30
Leeuwarden, Commission for butter quotations (*b*): Dutch (cents p. kg.) 1).	78	80	80	80	$76\frac{5}{8}$	62	$46\frac{1}{4}$	$57\frac{3}{8}$	$48\frac{7}{8}$
Antwerp (frs. p. kg.)	22 45	22.60	22 40	21.55	21.48	17.30	18 05	19.00	17.90
Germany (*c*)(fixed prices; Rm.p. 50 kg.) 2):									
With quality mark	130.00	130.00	130.00	130 00	130.00	130.00	130.00	130.00	130.00
Creamery	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00
London (*d*): English creamery, finest quality (shillings p. cwt.)	140/-	144/8	140/-	140/-	137/8	140/-	121/4	129/1	119/6
London, Provision Exchange (*a*) (shillings, p. cwt.):									
Danish creamery, unsalted	124/-	124/-	124/-	124/-	120/1	127/3	110/1	119/1	112/9
Estonian, unsalted	n. q.	n. q.	n. q.	n q.	n. q.	* 110/9	90/9	* 105/7	* 81/11
Latvian, unsalted	n. q.	n. q.	n. q.	n q.	n. q.	n q.	n. q.	n. q.	* 86/1
Dutch creamery, unsalted	110/-	113/-	113/-	112/-	109 1	110/6	87/3	98/1	93/4
Argentine, finest, unsalted	n. q.	n. q	n. q.	n. q.	n. q.	108/-	n. q.	* 97/1	* 82/10
Siberian, salted	110/-	113/6	n. q.	111/9	* 107/8	111/1	87/8	* 100/2	* 90/7
Australian, finest, salted	114/6	117/6	117/6	115/6	112/6	118/-	93/8	99/10	89/7
New Zealand, finest, salted	115/6	119 -	118/6	116/6	113/10	118/10	94/8	100/8	91/11
Cheese.									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1934 3)	n.1,050 00	n 1,050 00	n.1,050.00	n 1 050 00	n.1050.00	872.50	743.00	775.45	724.30
Parmigiano-Reggiano, 1st quality, production 1935 3)	1,050.00	1,050 00	1,050.00	1.050.00	1.032,00	842 50	672.00	734.25	614.60
Gorgonzola, green mature, choice. 4)	650.00	650.00	650.00	650.00	650.00	583.75	515.00	569.80	508.90
Rome: Roman Pecorino, choice 4) (lire p.q)	5) 950.00	5) 950.00	5) 950.00	5) 950 00	*1,062.50	1,162.50	875.00	1,121.90	865.50
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg.)	22 50	22.50	21.00	20.25	20 15	17.87	15.10	17.56	14.84
Gouda (*e*): Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made, 1st qual. (florins p. 50 kg.)	29.75	29.00	27.00	26.00	25.60	22.00	20.00	21.49	19.75
Kempten (*c*) (Rm. p. 50 kg.):									
Soft cheese, green 20 % butterfat	29.00	29.00	29.00	29.00	29.00	26.00	26.00	26.50	26.00
Emmenthal from the Allgäu, wholemilk cheese, 1st quality	80.00	80.00	80.00	80 00	80.00	80.00	77.00	80.00	77.00
London, Provision Exchange (*a*) (shillings, p. cwt.):									
English Cheddar, finest farmers	89/-	87/-	86/-	n. q.	n. q.	75/6	59/7	* 80/-	* 77/8
English Cheshire, Nat. Mark Selected.	89/10	88/8	86/4	82/10	83/4	73/9	61/7	78/3	80/5
Italian Gorgonzola (*d*)	98/-	98/-	98/-	98/-	98/-	n. q.	103/3	* 106/7	* 102/2
Dutch Edam, 40 + (*d*)	66/-	62/-	59/6	56/6	56/1	49/3	44/10	48/7	44/4
Canadian, finest white	6) 71/-	6) 72/6	80/-	80/-	* 79/3	6) 67/11	63/7	66/4	60/3
New Zealand, finest white	69/9	73/9	75/-	74/3	72/10	68/7	48/2	60/8	48/9

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the week — *e*) Saturday prices.

1) Home prices are increased by a consumption tax of 70 cents per kg. from 23 May to 24 July and of 65 cents subsequently. — 2) See *Crop Report*, April 1934, p. 306. — 3) Prices of 1934 cheese are compared, for the preceding years, with the yearly and monthly averages of cheese made in 1932-33 respectively; prices of 1935 cheese with 1933-34 respectively. The yearly averages refer to the periods from Sept. to August. As from 6 Oct. 1936, maximum prices, between wholesaler and retailer, for choicest quality, packing included. Up to the end of February 1937 these prices were f. o. r. sellers' station, subsequently free at retailers' shop. — 4) Export quality. — 5) Quality for home consumption (at the beginning of July the price of this quality was 125 lire lower than that of the cheese destined for export). — 6) New cheese.

DESCRIPTION	13 August 1937	6 August 1937	30 July 1937	23 July 1937	AVERAGE				
					July 1937	August 1936	August 1935	Commercial Season 1)	
								1936	1935
Eggs.									
Antwerp, auction Belgian, average qual (frs p 100)	51 00	47 00	48 00	48 00	47 80	53 00	54 00	50 80	48.35
Denmark (*a*) Danish for export (crs per quintal)	110 00	110 00	106 00	106 00	7) 98 80	104 00	117 50	108 20	106 75
Roermond, auction Dutch, 57/58 gr each, white (fl p 100)									
Fixed price for export into Germany			4 00	4 00	4 00	3 52	3 78	3 83	3 75
Price for other destinations						3 24	2 74	3 46	2 97
Warsaw (*b*) Polish, average weight 50 gr each various colours (zloty p 1440, including box)			97 20	97 20	97 20	76 50	92 83	* 96 05	104.43
Berlin (*c*) German, big, new laid (Rm p 100)									
marked « G I S » 65 gr each	11 25	11 25	9.25	9 25	9 25	12 00	11 50	10 77	10 57
marked « G I B », 55/60 gr each	10 25	10 25	8 25	8.25	8 25	10 00	10 00	9 26	9 34
London Egg Exchange (*d*) (sh p great hundred)									
English National Mark, specials	17 3	17/3	16/9	16/9	16 9	17 7¼	17/6	16/9	15/9
Belgian 15 ½ lb p 120	9/10½	10/-	10/-	10/2¼	10/1¼	9/10	10/11½	* 10/8¾	* 11/3¼
Danish 18 lb p 120	12/3	8) 11/7½	8) 11/1½	8) 11/4½	n. q	12/7½	12/11¼	12/8½	12/5
Northern Irish, 18 lb p 120 2)	15/9	16/-	15/7½	16/1½	15/9½	16/0½	16/2½	* 14/8¼	15/1½
Dutch all brown, 67/68 grams each	13/-	13/-	12/10½	12/10½	13/1½	13/7¼	14/-	13/10	13/2¼
Polish, 51/52 grams each	7/3¾	7/6¾	7/9¾	7/11¼	7/8¾	6/6½	7 10½	* 7/2½	* 7/1¼
Chinese violet	8/10½	8/10½	8 10½	9/-	* 8 11½	8/8¼	9/1½	* 9/2½	* 8/10½
Australian 16 lb p 120	n q	n q	n q	n q	n q	n q	n q	* 12/8¾	* 11/2½
Ocean freight rates 3)									
Shipments of wheat and maize.								1936-37	1935-36
Rates in shillings per quarter									
Churchill to United Kingdom	3 10½	4/-	n q	n q	n q	n 2 9	n q	* 2 10¼	n q
Montreal to United Kingdom	2/9	2/9	2 9½	2/9¾	2/11	2/-	1/6	* 2/6	* 2/1
St John to Liverpool 4)	n q	n q	n q	n q	n q	n q	n q	* 2/10½	* 2/1½
New York to Liverpool 4)	n q	n q	n q	n. q	n q	n q	1/6	n q	* 1/6
Northern Range to U K Continent	4/6	4/6	n 2/9	n 2/9	n 2/9	n q	1/6	* 2/9	1/10
Gulf to United Kingdom 4)	5/-	4 3	4 3	4 3	4/5	n q	2/6	n q	* 2/6
Rates in shillings per long ton									
Danube to Antwerp/Hamburg	28	25 -	21 -	21 -	* 20/6	16/8	n q	* 20 4	* 15/7
Black Sea to Antwerp/Hamburg	17 11	17/11	16/11	16 9	* 16/8	13/-	9 11	* 16/10	* 10 2
North Pacific to United Kingdom	37/6	37 6	38 1	38 1	39 3	20/2	n q	* 29 9	* 20/-
La Plata "Down River" 5) Bahia Blanca to U K /Continent	30/3	30/5	30/1	30 9	31/1	n 17 3	15/6	23 11	16/6
La Plata "Up River" 6)/Necochea to U K /Continent	32/9	32 4	31/11	32/-	32/7	18/6	17/1	25 2	17 8
South Australia to U K Continent (in bulk)	45/5	44 9	45 1	45/-	45 6	25/6	22 10	34 1	25/-
Western Australia to U K /Continent (in bags)	n q	n q	49 -	49 -	49 5	27	n 24 6	37 3	26 5
New South Wales to U K /Continent (in bulk)	44 3	44 3	47 -	47/-	n 43 6	n 25 6	n 22 -	34/11	23/11
Shipments of rice.								1936	1935
Rates in shillings per long ton									
Saigon to Europe	42 1	43 -	44/1	42 7	45/4½	24 11	19 6	26/3	* 22/7
Burma to U K /Continent	n q	n q	n q	n q	n q	n q	n q	* 24/-	* 21/8

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* Indicates that the product, or the ocean freight, was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a*) Average prices for weeks commencing on Fridays indicated — *b*) Average prices for weeks commencing on preceding Mondays — *c*) Thursday prices — *d*) Prices on preceding Monday

1) Shipments of wheat and maize Aug July — 2) From Feb 1936 "Extra special quality — 3) Average rates for entire cargoes, except where otherwise stated relating often to contracts made, during a period extending back several months, to operate during the weeks specified — 4) Rates for parcels by liners — 5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight — 7) 16 July: 106 00 — 8) Eggs weighing 17 lb per 120

EXCHANGE RATES

Relation of various currencies to their parity with the U. S. dollar 1)

National currencies	Parity (1)	Actual Exchange Rates 13 August 1937	6 August 1937	30 July 1937	23 July 1937	Percentage deviation from parity with U. S. dollar: premium (+) or discount (—) 13 August 1937	6 August 1937	30 July 1937	23 July 1937
Germany. reichsmark	40.332	40.216	40.227	40.228	40.254	— 0.3	— 0.3	— 0.3	— 0.2
Argentina: paper peso	71.959	n. 33.220	n. 33.214	n. 33.172	n. 33.172	— 53.8	— 53.8	— 53.9	— 53.9
Belgium: belga	2) 23.542 3) 16.950	16.833	16.835	16.831	16.832	— 28.5 — 0.7	— 28.5 — 0.7	— 28.5 — 0.7	— 28.5 — 0.7
Canada: dollar	100.000	99.969	99.984	99.957	99.893	0.0	0.0	0.0	— 0.1
Denmark: crown	45.374	22.249	22.241	22.219	22.212	— 51.0	— 51.0	— 51.0	— 51.0
Spain: peseta	32.669	n. 6.728	n. 5.210	n. 5.058	n. 4.975	— 79.4	— 84.1	— 84.5	— 84.8
France: franc 4)	6.633	3.752	3.750	3.748	3.735	— 43.4	— 43.5	— 43.5	— 43.7
Great Britain: £ sterling 5)	8.2397	4.9854	4.9832	4.9777	4.9753	— 39.5	— 39.5	— 39.6	— 39.6
Hungary: pengö	29.612	n. 19.772	n. 19.772	n. 19.772	n. 19.772	— 33.2	— 33.2	— 33.2	— 33.2
India: rupee	61.798	37.621	37.598	37.579	37.556	— 39.1	— 39.2	— 39.2	— 39.2
Italy: lira	2) 8.911 6) 5.263	5.260	5.260	5.260	5.260	— 41.0 — 0.1	— 41.0 — 0.1	— 41.0 — 0.1	— 41.0 — 0.1
Japan: yen	84.396	29.047	29.001	28.950	28.946	— 65.6	— 65.6	— 65.7	— 65.7
Netherlands: florin	68.057	55.132	55.148	55.166	55.231	— 19.0	— 19.0	— 18.9	— 18.8
Poland: zloty	18.994	18.902	18.905	18.905	18.905	— 0.5	— 0.5	— 0.5	— 0.5
Romania. leu	1.013	n. 0.728	n. 0.725	n. 0.730	n. 0.725	— 28.1	— 28.4	— 27.9	— 28.4
Sweden: crown	45.374	25.696	25.687	25.664	25.653	— 43.4	— 43.4	— 43.4	— 43.5
Switzerland	32.669	22.962	22.967	22.961	22.950	— 29.7	— 29.7	— 29.7	— 29.7
Czechoslovakia: crown	2) 5.016 7) 3.512	3.486	3.486	3.485	3.485	— 30.5	— 30.5 — 0.7	— 30.5 — 0.8	— 30.5 — 0.8

1) Parities and current rates are both expressed in U. S. cents per unit of the foreign currency. (The £ sterling is expressed in dollars). The dollar contains 0.8886706 grams of fine gold, i e. 40.9 % less than formerly. — 2) Former parity — 3) New parity as from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs, the actual rates vary only slightly from this — 5) Quotations for the Egyptian pound are omitted, its relationship with £ sterling being fixed (97 ¹/₂ piastres = 1 £ sterling). — 6) New parity as from 5 Oct. 1936. — 7) New parity as from 10 Oct. 1936.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural products and other price indices of interest to the farmer, as published in the different countries, are given in the following pages.

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

Countries	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
	Index numbers for July 1937			
	in comparison with June 1937		in comparison with July 1936	
Germany (wholesale prices)	0.0	—	0.0	—
Germany (products sold by farmers)	+ 1.1	+ 0.3	— 0.4	+ 2.1
England and Wales	0.0	+ 1.2	+ 10.7	+ 21.6
Argentina	+ 4.5	—	+ 23.0	—
Canada	+ 10.5	+ 3.4	+ 39.5	+ 17.6
United States Bureau of Agric Economics	+ 0.8	—	+ 8.7	—
United States: Bureau of Labor	+ 0.9	+ 0.8	+ 9.8	+ 9.2
Finland	+ 1.7	0.0	+ 10.1	+ 13.2
Hungary	+ 2.6	0.0	+ 12.7	+ 9.3
Lithuania	+ 2.1	0.0	+ 29.7	+ 18.2
Netherlands	+ 6.5	+ 1.6	+ 24.5	+ 24.4
Poland	— 0.9	— 0.4	+ 23.4	+ 12.1
Sweden	+ 2.4	—	+ 3.2	—
	Index-numbers for June 1937			
	in comparison with May 1937		in comparison with June 1936	
Belgium	+ 3.5	—	+ 10.8	—
United States: Bureau of Agric Economics	— 3.1	—	+ 15.9	—
United States. Bureau of Labor	— 1.4	— 0.2	+ 13.3	+ 10.1
Lithuania	— 2.1	0.0	+ 27.0	+ 18.2
Sweden	— 2.3	—	+ 11.6	—

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	July 1937	June 1937	May 1937	April 1937	March 1937	Feb. 1937	July 1936	July 1935	Year	
Germany 2)									1936-37 6)	1935-36 6)
(Statistisches Reichsamt) Average for corresponding months 1909-1910/1913-14 = 100.										
Cereals	103	102	101	103	107	107	101	98	104	104
Edible potatoes	137	112	122	116	114	106	143	166	115	119
Plant products	117	103	107	107	108	107	118	126	107	107
Meat animals	95	97	96	95	93	94	96	92	94	96
Dairy and poultry products	113	117	113	109	102	101	114	114	105	106
Livestock products	101	104	102	99	96	96	102	99	98	99
Total agricultural products	104	104	102	101	99	99	104	104	100	101
Germany 3)									1936	1935
(Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	118.2	115.7	115.5	114.5	114.6	113.6	117.2	116.2	114.1	113.4
Livestock	88.9	87.4	86.2	85.7	84.4	84.9	89.1	85.9	89.4	84.2
Livestock products	107.8	107.8	107.8	109.4	110.4	110.3	108.8	105.5	109.4	107.1
Feeding stuffs	107.0	108.3	107.7	107.3	106.7	105.7	110.2	103.8	107.5	104.6
Total agricultural products	105.7	104.6	104.1	103.9	103.9	103.4	106.1	103.1	104.9	102.2
Fertilizers	52.9	55.8	57.1	60.6	61.9	62.4	62.9	64.9	66.8	66.8
Agricultural dead stock	112.7	112.7	112.7	112.8	112.7	112.7	111.4	111.1	111.6	111.1
Finished manufactures("Konsumgüter")	133.3	132.9	132.5	131.8	131.4	130.7	127.4	123.9	127.3	124.0
Wholesale products in general.	106.4	106.1	105.9	105.8	106.1	105.5	104.2	101.8	104.1	101.8
England and Wales										
(Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products 4)	134	134	136	143	134	133	121	120	126	123
Feeding stuffs	122	119	119	124	118	115	93	83	93	87
Fertilizers	91	91	91	91	91	91	89	88	89	88
Wholesale products in general 5)	124.2	122.7	124.4	122.7	125.8	119.6	102.1	99.2	104.4	99.5
Argentina										
(Banco Central de la República Argentina) 1926 = 100.										
Cereals and linseed	103.2	97.7	102.4	102.6	99.7	91.9	85.1	62.5	82.6	67.2
Meat	95.7	92.6	86.3	83.4	78.1	81.1	95.7	84.7	91.0	84.0
Hides and skins	125.8	118.1	123.9	139.4	137.0	120.4	77.7	75.2	91.0	80.5
Wool	143.3	144.9	153.9	160.4	156.8	152.2	100.1	75.4	107.6	74.6
Dairy products	98.2	91.7	85.8	87.3	89.3	91.3	84.6	100.5	85.5	88.8
Forest products	100.2	98.7	97.8	97.8	97.3	98.0	95.5	91.8	96.3	92.2
Total agricultural products	107.0	102.4	105.7	107.1	104.1	97.7	87.0	68.8	86.6	72.1

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1) For an explanation of the method of calculating the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 996) — 2) Index-numbers of products sold by farmers. — 3) Index-numbers of wholesale prices — 4) Revised index-numbers due to the Wheat Act payments as from August 1932 and the Cattle Emergency Act payments as from September 1934. — 5) Calculated by the *Statist*, reduced to base-year 1913 = 100. — 6) Agricultural year: 1 July to 30 June.

Description	July 1937	June 1937	May 1937	April 1937	Mar. 1937	Feb. 1937	July 1936	July 1935	Year 1936	Year 1935
Belgium (Belgische Boerenbond Boerenbond belge) Average of corresponding months 1909/1914 = 100.										
Field products	...	543	576	594	562	562	461	462	508	438
Livestock products	...	604	559	547	586	589	574	521	576	532
Total agricultural products	...	585	565	562	578	580	538	502	555	502
Rent	...	650	645	645	645	640	605	550	605	551
Agricultural wages	...	855	850	845	840	835	775	730	778	737
Fertilizers	...	433	433	431	434	436	438	401	427	394
Feedingstuffs	...	601	573	601	594	595	510	429	513	444
Total production expenses (included those not specified)	...	735	727	731	728	726	688	625	689	630
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	97.7	85.1	89.0	94.4	93.4	89.6	63.2	55.2	67.0	57.1
Livestock and livestock products	83.9	81.4	85.7	86.3	84.2	82.6	71.6	71.1	75.3	73.9
Total Canadian farm products	92.5	83.7	87.8	91.4	90.0	87.0	66.3	61.1	70.1	63.4
Fertilizers	74.5	74.5	74.5	74.5	74.2	74.2	74.3	75.8	74.4	75.8
Consumers' goods (other than foodstuffs, beverages and tobacco)	79.0	78.5	78.2	77.7	77.5	77.8	75.0	75.1	75,5	75.7
Wholesale products in general	87.5	84.6	85.1	86.1	85.5	82.9	74.4	71.4	74.6	72.1
Irish Free State (Department of Industry and Commerce) Average 1911/1913 = 100										
Agricultural products in general	...	...	106.5	103.6	98.6	93.8	90.7	80.3	90.6	83.0
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100										
Cereals	139	139	149	154	145	146	109	96	108	103
Cotton and cottonseed	106	107	112	117	116	108	105	102	100	101
Fruits	145	157	152	142	133	127	117	98	100	91
Truck crops (market garden crops)	96	124	139	127	131	143	115	93	113	127
Meat animals	144	137	133	130	129	126	119	116	121	117
Dairy products	116	113	116	120	125	126	116	96	119	108
Chickens and eggs	102	95	96	104	102	101	106	107	115	117
Miscellaneous	113	119	133	138	140	147	131	85	122	97
Total agricultural products	125	124	128	130	128	127	115	102	114	108
Commodities purchased 1)	133	133	134	134	132	132	123	126	124	125
Agricultural wages 1)	—	123	—	112	—	—	108	99	106	95
United States (Bureau of Labor) 1926 = 100.										
Cereals	105.2	105.7	113.9	119.2	113.2	111.5	88.9	78.3	88.1	82.4
Livestock and poultry	105.0	98.3	95.9	93.6	93.7	89.9	82.0	82.8	84.8	84.9
Other farm products	75.1	77.4	79.0	83.4	88.5	86.3	78.2	72.9	76.0	73.4
Total agricultural products	89.3	88.5	89.8	92.2	94.1	91.4	81.3	77.1	80.9	78.7
Agricultural implements	94.2	94.1	93.8	92.1	93.1	93.1	94.2	93.6	94.1	93.7
Fertilizer materials	71.3	70.5	70.6	70.7	70.3	70.7	65.2	65.7	65.9	66.3
Mixed fertilizers	74.2	72.3	72.2	72.0	71.7	71.7	68.7	68.6	68.3	70.6
Cattle feed	116.5	116.9	139.9	146.8	135.0	129.4	107.9	78.6	94.0	88.4
Non-agricultural commodities	87.5	86.8	86.7	86.9	86.3	85.0	80.3	79.8	80.7	80.2
Wholesale products in general	87.9	87.2	87.4	88.0	87.8	86.3	80.5	79.4	80.8	80.0

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1) 1910-1914 = 100.

Description	July 1937	June 1937	May 1937	April 1937	Mar. 1937	Feb. 1937	July 1936	July 1935	Year	
									1936	1935
Finland (Central Bureau of Statistics) 1926 = 100.										
Cereals	106	112	116	117	116	116	87	79	91	80
Potatoes	83	59	65	71	76	71	93	89	74	75
Fodder	67	70	74	75	75	68	59	68	64	62
Meat	87	86	83	79	87	86	88	79	80	75
Dairy products	85	81	83	85	87	86	81	82	82	83
Total agricultural products	87	86	87	88	91	88	79	78	79	76
Wholesale products in general	103	103	104	103	103	101	91	90	92	90
Hungary (Central Bureau of Statistics) 1913 = 100										
Agricultural and livestock products	80	78	79	79	80	78	71	79	—	—
Wholesale products in general	94	94	95	94	95	93	86	90	—	—
Lithuania (Lietuvos Bankas) 1926 29 = 100										
Cereals	50	49	48	48	47	47	36	37	37	39
Cattle fowls	50	50	51	50	47	46	40	27	40	30
Leather, hides, wool	59	59	62	62	61	60	47	36	50	38
Meat dairy products and eggs	42	41	42	41	44	44	35	33	38	35
Total agricultural products	48	47	48	47	47	47	37	33	39	35
Wholesale products in general	52	52	52	52	51	51	44	44	45	45
New Zealand (Census and Statistics Office) Average 1909 13 = 100.										
Dairy products	...	112.6	108.3	97.6	90.4	95.3	114.2	88.7	105.6	91.3
Meat	...	163.4	164.5	164.5	162.7	168.2	158.4	151.5	161.5	157.6
Wool	...	180.9	190.8	184.6	175.2	181.1	111.7	84.4	111.5	82.2
Other pastoral products	...	153.1	151.8	145.1	147.0	139.7	123.1	100.7	123.6	96.7
All pastoral and dairy products	..	144.1	144.5	138.1	132.6	137.1	126.8	105.2	122.9	107.2
Field products	...	130.6	138.4	134.3	140.4	120.4	118.8	124.5	124.2	126.0
Total agricultural products	...	143.7	144.3	138.0	132.8	136.6	128.3	105.8	123.9	108.8
Norway (Kgl Selskap for Norges Vel) Average 1909-14 = 100.									1936 37 1)	1935 36 1)
Cereals	173	172	172	171	169	168	148	148	154	144
Potatoes	227	188	134	142	153	158	128	240	132	165
Pork	123	108	103	102	107	114	101	93	110	109
Other meat	206	185	165	154	155	148	155	150	148	146
Dairy products	158	156	153	153	151	144	135	139	139	139
Eggs	109	98	96	101	122	105	98	79	113	102
Concentrated feeding stuffs	152	153	151	148	143	146	127	126	130	123
Maize	145	146	139	136	132	134	128	115	130	113
Fertilizers	90	90	90	90	89	89	87	78	87	82

1) Agricultural year: 1 st April-31.st March

SPECIFICATION	July 1937	June 1937	May 1937	April 1937	March 1937	Feb. 1937	July 1936	July 1935	Year	
									1936-37 2)	1935-36 2)
Netherlands										
(Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	64	61	62	61	60	60	52	53	58	50
Livestock products	66	63	63	64	62	57	54	48	57	51
Total agricultural products	66	62	62	63	61	57	53	49	57	51
Agricultural wages	68	68	68	68	68	68	68	69	68	69
Wholesale products in general 1)	77.5	76.3	76.7	77.1	76.0	74.0	62.3	60.9	3) 63.8	3) 61.5
Poland										
(Central Bureau of Statistics) 1928 = 100.									1936	1935
Raw plant products	56.9	61.6	55.8	54.2	54.7	53.2	34.4	33.1	38.1	33.9
Meat animals	47.9	42.3	41.9	43.7	43.3	42.7	40.5	37.5	38.7	35.5
Dairy products and eggs	43.6	43.8	47.0	47.6	49.3	46.4	37.8	38.8	40.4	41.2
Products sold directly by farmers	51.5	51.9	49.6	49.5	50.0	48.5	37.0	35.6	38.7	35.8
Flour and groats	54.3	60.2	57.5	56.7	59.4	60.1	38.0	33.8	41.2	36.7
Meat and lard-fat	50.2	46.7	47.6	47.8	47.9	45.6	47.5	43.1	44.3	40.8
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.4	79.3	71.5	79.2
Products of agricultural industries	58.5	58.9	58.6	58.4	59.3	58.7	52.3	51.9	52.2	52.0
Total agricultural products	54.9	55.4	54.0	53.9	54.6	53.5	44.5	43.7	45.4	43.8
Commodities purchased	66.6	66.2	66.3	66.5	66.5	66.1	64.4	66.0	64.6	66.3
Wholesale products in general	60.1	60.3	59.9	60.1	60.6	59.8	53.6	52.8	54.0	53.0
Sweden										
(Kungl Lantbruksstyrelse). Average 1909-1913 = 100.										
Plant products	130	126	127	128	126	126	115	123	108	108
Dairy products	125	124	132	132	136	133	129	110	133	122
Meat animals	135	126	123	118	120	120	132	127	126	120
Livestock products	127	124	129	128	132	130	129	114	131	121
Total agricultural products	128	125	128	128	130	129	124	117	123	117
Feedingstuffs	134	133	137	139	139	143	135	122	133	125
Fertilizers	93	94	94	94	94	94	94	97	95	95
Building materials	194	194	194	193	191	185	157	162	161	162
Machinery and implements	196	196	196	196	196	196	179	179	177	177
Sundries	130	131	128	127	123	122	111	111	112	109
Total commodities purchased	143	143	144	144	143	143	132	129	133	129
Agricultural wages	193	193	193	193	193	193	174	170	164	170
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	...	69.3	69.8	65.8	67.8	68.1	60.9	60.3	69.7	68.2
Livestock products	...	62.0	62.7	65.7	64.3	62.7	61.1	55.6	60.0	56.6
Industrial products	...	75.9	76.5	76.6	75.4	74.0	67.5	65.7	69.7	66.7
Wholesale products in general	...	72.1	72.6	72.3	72.1	70.9	65.6	63.3	68.4	65.9

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1) New index-numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) Agricultural year: 1 July to 30 June. — 3) Calendar year.

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for July already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1937	1936	1937	1936
BRAZIL		April	April	April	April
Wheat	1000 centals	—	—	2,202	1,584
Wheat flour	» »	—	—	87	108
Maize	» »	0	0	0	0
Rice	» »	35	69	—	—
Cotton	» »	258	254	—	—
Cacao	1000 lb.	3,505	4,200	—	—
CHOSEN		May	May	May	May
Wheat	1000 centals	0	0	0	13
Wheat flour	» »	3	2	0	0
Barley	» »	1	0	11	0
Oats	» »	0	0	0	0
Maize	» »	1	0	1	45
Rice	» »	4	4	0	0
Cotton	» »	0	0	2	0
Tea	1000 lb.	9	18	0	0
TAIWAN					
Wheat	1000 centals	—	—	0	0
Rice	» »	0	0	0	0
Cotton	» »	—	—	0	0
Tea	1000 lb.	1,625	922	2	2
NETHERLANDS INDIES: OUTER PROVINCES					
Wheat flour	1000 centals	—	—	45	33
Rice	» »	7	60	192	375
Cotton	» »	4	1	—	—
Butter	1000 lb.	—	—	214	278
Tea	» »	2,546	3,109	—	—
Coffee	» »	7,266	8,056	—	—
NEW ZEALAND					
Wheat	1000 centals	0	0	15	1
Wheat flour	» »	0	0	0	14
Barley	» »	0	0	0	37
Oats	» »	0	0	1	0
Maize	» »	0	0	67	22
Rice	» »	1	0	19	21
Linseed	» »	1	0	0	0
Wool a)	1000 lb.	27,829	34,926	0	0
Wool b)	» »	8,497	6,940	0	0
Butter	» »	4,142	13,702	—	—
Cheese	» »	10,853	13,583	0	0
Cacao	» »	—	—	126	132
Tea	» »	4	22	1,296	648
Coffee	» »	0	0	79	31
COLOMBIA		June	June	June	June
Coffee	1000 lb.	41,343	48,517	—	—

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1937	1936	1937	1936
ADEN		June	June	June	June
Coffee	1000 lb.	558	919	—	—
CHOSEN					
Wheat	1000 centals	0	0	0	0
Wheat flour	» »	7	6	0	0
Barley	» »	0	0	0	0
Oats	» »	1	0	0	0
Maize	» »	0	0	17	186
Rice	» »	3	2	0	0
Cotton	» »	0	0	1	0
Tea	1000 lb.	15	20	4	0
NETHERLANDS INDIES: JAVA AND MADURA					
Maize	1000 centals	165	353	—	—
Rice	» »	10	7	...	...
Cotton	» »	1	0	—	—
Cacao	1000 lb.	289	121	—	—
Tea	» »	9,032	10,915	...	...
Coffee	» »	3,353	2,489	—	—
INDO-CHINA					
Wheat flour	1000 centals	...	...	44	22
Maize	» »	733	915	—	—
Rice	» »	2,791	3,974	...	...
Coffee	1000 lb.	137	97	...	...
ALGERIA					
Wheat	1000 centals	135	284	40	45
Wheat flour	» »	38	82	6	6
Rye	» »	0	2	0	0
Barley	» »	2	5	44	31
Oats	» »	4	47	0	1
Maize	» »	0	0	0	1
Rice	» »	1	0	116	10
Linseed	» »	0	0	0	0
Cotton	» »	0	0	0	0
Wool	1000 lb.	3,607	2,403	342	313
Butter	» »	0	0	346	331
Cheese	» »	11	4	906	886
Cacao	» »	0	0	115	117
Tea	» »	0	4	218	218
Coffee	» »	0	0	2,989	3,261
TUNIS (*see over*)					
Wheat	1000 centals	30	15	25	28
Wheat flour	» »	16	21	11	1
Barley	» »	116	10	2	0
Oats	» »	33	3	0	0
Maize	» »	0	0	2	0
Rice	» »	0	0	17	3
Linseed	» »	0	0	0	0

a) Wool greasy. — b) Wool scoured.

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1937	EXPORTS 1936	IMPORTS 1937	IMPORTS 1936
TUNIS (*concluded*)		June	June	June	June
Wool	1000 lb.	1,001	119	311	75
Butter	» »	0	0	93	132
Cheese	» »	9	7	163	265
Cacao	» »	—	—	4	18
Tea	» »	—	—	328	236
Coffee	» »	0	0	146	313
GERMANY		July	July	July	July
Wheat	1000 centals	0	190	5,074	121
Wheat flour	» »	0	79	205	1
Rye	» »	0	0	1,101	90
Barley	» »	0	0	297	129
Oats	» »	0	0	271	195
Maize	» »	0	0	4,203	454
Rice	» »	70	44	368	307
Linseed	» »	0	0	267	449
Cotton	» »	0	1	513	329
Wool a)	1000 lb.	51	18	14,681	18,146
Wool b)	» »	11	11	2,818	4,094
Butter	» »	0	0	19,427	12,209
Cheese	» »	2	18	6,332	4,769
Cacao	» »	309	0	13,029	12,004
Tea	» »	29	0	869	765
Coffee	» »	0	0	30,521	32,653
FINLAND					
Wheat	1000 centals	0	0	141	198
Wheat flour	» »	0	0	68	76
Rye	» »	0	0	76	96
Barley	» »	0	0	0	2
Oats	» »	0	0	11	28
Maize	» »	0	0	96	132
Rice	» »	0	0	37	47
Linseed	» »	0	0	9	7
Cotton	» »	0	0	19	19
Wool	1000 lb.	9	2	507	476
Butter	» »	3,117	3,177	0	0
Cheese	» »	1,294	880	0	0
Cacao	» »	—	—	20	7
Tea	» »	—	—	18	11
Coffee	» »	—	—	3,768	3,697
HUNGARY					
Wheat	1000 centals	199	1,579	0	0
Wheat flour	» »	74	145	0	0
Rye	» »	81	22	0	0
Barley	» »	19	14	0	0
Oats	» »	0	6	0	0
Maize	» »	103	0	0	237
Rice	» »	0	0	54	34
Linseed	» »	0	0	0	0
Cotton	» »	0	0	42	53
Wool	1000 lb.	152	51	95	331
Butter	» »	800	520	0	0
Cheese	» »	18	49	0	0
Cacao	» »	—	—	399	593
Tea	» »	—	—	18	15
Coffee	» »	—	—	375	280
NORWAY					
Wheat	1000 centals	0	0	149	121
Wheat flour	» »	0	0	33	75
Rye	» »	0	0	134	274

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1937	EXPORTS 1936	IMPORTS 1937	IMPORTS 1936
NORWAY (*concluded*)		July	July	July	July
Barley	1000 centals	0	0	80	15
Oats	» »	0	0	0	0
Maize	» »	0	0	221	318
Rice	» »	0	0	12	12
Linseed	» »	0	0	62	51
Cotton	» »	0	0	3	5
Wool	1000 lb.	150	95	201	212
Butter	» »	112	0	0	0
Cheese	» »	359	134	35	9
Cacao	» »	—	—	809	205
Tea	» »	—	—	24	15
Coffee	» »	—	—	1,788	2,542
NETHERLANDS					
Wheat	1000 centals	0	0	1,051	95
Wheat flour	» »	105	0	144	15
Rye	» »	16	0	114	24
Barley	» »	1	0	357	54
Oats	» »	10	0	121	6
Maize	» »	0	0	1,863	1,61
Rice	» »	249	198	353	215
Linseed	» »	2	2	615	409
Cotton	» »	0	0	136	8
Wool a)	1000 lb.	223	450	397	899
Wool b)	» »	26	44	591	461
Butter	» »	12,959	14,529	0	2
Cheese	» »	12,322	11,539	42	66
Cacao	» »	375	280	8,781	7,487
Tea	» »	22	11	2,235	2,000
Coffee	» »	359	20	4,736	1,272
POLAND-DANTZIG					
Wheat	1000 centals	8	60	0	0
Wheat flour	» »	0	157	0	0
Rye	» »	19	275	0	0
Barley	» »	5	296	0	0
Oats	» »	2	169	0	0
Maize	» »	0	0	39	0
Rice	» »	13	29	180	13
Linseed	» »	0	2	0	0
Cotton	» »	0	0	143	127
Wool	1000 lb.	2	11	2 890	2,017
Butter	» »	3,373	4,259	0	0
Cheese	» »	381	18	13	20
Cacao	» »	—	—	728	798
Tea	» »	0	0	267	163
Coffee	» »	2	0	1,023	1,415
UNITED KINGDOM					
Wheat	1000 centals	..	...	9,878	9,741
Wheat flour	» »	...	...	682	67
Barley	» »	...	...	714	1,385
Oats	» »	...	...	231	26
Maize	» »	291	153	5,683	5,28
Rice	» »	...	...	220	15
Linseed	» »	...	...	396	77
Cotton	» »	49	63	828	1,35
Wool	1000 lb.	19,687	28,980	43,010	42,94
Butter	» »	...	...	101,891	104,52
Cheese	» »	459	467	33 607	23,35
Cacao	» »	395	1,814	3,155	5,27
Tea	» »	7,117	6,431	28,493	31,04
Coffee	» »	366	1,501	1,224	754

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a) Wool greasy. — *b*) Wool scoured.

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1937	EXPORTS 1936	IMPORTS 1937	IMPORTS 1936
SWEDEN		July	July	July	July
Wheat	1000 centals	5	293	77	84
Wheat flour	» »	0	5	0	0
Rye	» »	0	16	0	0
Barley	» »	0	0	0	0
Oats	» »	0	2	108	12
Maize	» »	—	—	476	140
Rice	» »	—	—	30	40
Linseed	» »	—	—	150	75
Cotton	» »	—	—	55	55
Wool	1000 lb	—	—	14	15
Butter	» »	5 981	4 497	0	0
Cheese	»	—	—	86	161
Cacao		—	—	522	968
Tea	»	—	—	51	51
Coffee	»	—	—	8,303	8,457
SWITZERLAND					
Wheat	1000 centals	2	0	502	985
Rye	»	0	0	1	31
Barley	»	0	0	135	59
Oats	»	0	0	232	340
Maize	» »	0	0	179	118
Rice	» »	0	0	17	31
Cotton	»	5	0	34	40
Wool	1000 lb	13	24	245	864
Butter	»	0	0	18	20
Cheese	» »	3 609	3,858	236	247

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1937	EXPORTS 1936	IMPORTS 1937	IMPORTS 1936
SWITZERLAND (*concluded*)		July	July	July	July
Cacao	1000 lb	13	0	723	818
Tea	» »	2	2	90	104
Coffee	» »	0	0	1,982	3,309
CZECHOSLOVAKIA					
Wheat	1000 centals	303	0	158	0
Wheat flour	»	0	0	0	4
Rye	» »	0	0	1	1
Barley	»	0	24	0	0
Oats	» »	17	0	0	0
Maize	» »	0	0	256	301
Rice	» »	0	0	124	156
Linseed	» »	0	0	46	54
Cotton	»	4	3	173	134
Wool	1000 lb	95	62	3,155	3,816
Butter	» »	0	0	108	26
Cheese	» »	77	77	243	201
Cacao	» »	—	—	917	1,316
Tea	»	—	—	49	40
Coffee	» »	—	—	1 735	1,642
BRAZIL					
Coffee	1000 lb	95 650	140,567	—	—
KENYA					
Coffee	1000 lb	913	1,812	—	—

PRODUCTION

Austria Clear weather prevailed during July but frequently there were violent rains sometimes accompanied by hail The first decade was fairly warm, but temperatures fell appreciably at the beginning of the second decade to rise again in the middle of the month In the middle of the third decade there were particularly heavy rains which caused serious damage in some places The weather cleared again at the end of the month Winter wheat had been cut nearly everywhere and most of it had been saved The grain is of good quality Spring wheat was harvested only in the plains and yields seem to be satisfactory Harvesting of winter rye, though impeded at times by the lodging caused by the heavy rains of the third decade, is almost finished Yields are lighter than last year and quality is not entirely satisfactory Spring rye is ripening with well filled ears Winter barley the area under which is continuously expanding has given better yields than last year and its quality is good Spring barley lost colour somewhat owing to the rain Oat ears are well formed and the rains of the end of July appreciably improved the quality of the grain

The straw yields of all cereal crops leave much to be desired

As a result of the rain, the situation of the *maize* crop was appreciably better *Sugar-beet* also improved with roots growing satisfactorily Flowering of *potatoes* was plentiful, the early crops, lifting of which has begun, are giving satisfactory yields and the main crop also promises a good production *Vines* promise a plentiful crop, grapes are already well developed and the early varieties are beginning to ripen Owing to anticryptogamic treatment, mildew has done little damage. The last cleaning of weeds has begun. Red clover has been grown mainly for seed. The third cut of alfalfa will soon be taken; the second cut yielded a large crop which, however, was largely consumed green. Aftermath on all meadows is making satisfactory progress except in low-lying districts and on the sunny, dry hillsides. Pastures are yielding sufficient bite for stock.

		1937	1936	Average 1931 1935	% 1937	
					1936 = 100	Average = 100
Area (thousand acres).						
Winter wheat		597	592	529	100.8	112.7
Winter rye		855	905	906	94.4	94.3
Winter barley		25	21	19	118.8	128.5
Spring barley		372	373	396	99.7	94.0
Production.						
Winter wheat	(000 centals)	8,029	8,027	7,722	100.0	104.0
	(000 bushels)	13,382	13,378	12,870		
Winter rye	(000 centals)	9,048	10,095	12,724	89.6	71.7
	(000 bushels)	16,157	18,027	22,722		
Winter barley	(000 centals)	328	298	268	110.4	122.7
	(000 bushels)	684	620	558		
Spring barley	(000 centals)	5,578	5,833	5,855	95.6	95.3
	(000 bushels)	11,620	12,153	12,199		

Canada (Telegram of 26 August): In Manitoba crops are nearly all cut and considerable threshing has been done. Yields are mostly good although grades are lower than last year.

In Saskatchewan cutting is almost completed and yields are running from less than seed to as high as 25 bushels. Feed supplies are low in most of the province with no important change in the dried out areas in recent weeks.

Harvesting is progressing in Southern Alberta but in other parts of the province dry weather is needed to hasten the ripening of the crops.

No frost damage is reported but grasshoppers are plentiful.

United States (Telegram of 26 August): Temperatures last week in the United States averaged above normal. Rainfall was general from the Great Plains eastward and especially helpful in the midwest. Harvesting and threshing of small grains is practically completed and winter wheat seeding has started. Maize continued to make favourable progress in the east but the crop is poor in some sections west of the Mississippi. Conditions were generally favourable for cotton.

India: According to the first estimate, the area under sugar-cane this year is 3,804,000 acres against a corresponding estimate of 4,208,000 acres in 1936-37 and a corresponding average of 3,226,000 acres in the five years ending 1935-36; percentages, 90.4 and 117.9.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

27-VIII-1937.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland, Romania and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield, Egypt. 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report

VEGETAL PRODUCTION

Cereals

The international wheat trade in 1936-37.

Data on the commercial movements of wheat during July have now reached the Institute, so that by now all the results of the 1936-37 season, just ended are complete World net exports of wheat, at 607 million bushels, reached the highest level recorded in international trade since the 1932-33 season; the continuous decline in world demand which had lasted four years was arrested and the total results of the 1936-37 season indicate an increase of 30 per cent. over the previous season. In spite of this remarkable recovery, the volume of the international wheat trade was considerably restricted compared with the years before the great crisis of 1929, when the world wheat demand centred around 800 million bushels; it is even about 70 million, or 10 per cent., below the pre-war average.

Of the usual wheat exporting countries, three, namely the United States, Morocco and Tunisia did not have exportable surpluses and they had to have recourse to importing from abroad to supply their own requirements; Chile and Lithuania had no surplus and barely had sufficient for themselves and the U. S. S. R. exported small quantities. The largest proportion of world exports in 1936-37 was supplied, as usual, in the absence of the United States,

World net exports of wheat (including flour in terms of wheat) *).

(Million bushels)

MONTHS	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August	47	39	49	45	41	67	77	71
September	52	50	43	51	48	78	74	57
October	52	51	50	46	61	74	84	60
November	57	51	43	42	54	67	77	51
December	53	34	39	51	60	64	59	50
January	63	33	43	48	62	62	55	48
February	61	46	42	45	63	73	70	45
March	62	45	49	50	64	74	67	50
April	47	31	42	35	40	70	62	43
May	43	45	47	44	52	67	81	50
June	41	41	33	46	42	59	67	52
July	29	39	36	45	44	46	52	53
Total Year	*607*	*505*	*516*	*548*	*631*	*801*	*825*	*630*

*) Aggregate net exports of the normal exporting countries (United States net imports not deducted).

by Canada, Argentina and Australia, but this proportion, though 77 per cent. of the total, was below those of previous seasons (82 per cent. in 1935-36 and

World wheat net exports (including flour in terms of wheat).

(Million bushels)

COUNTRY	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
Canada	209	245	164	190	259	208	269	191
United States	1) 19	1) 35	1) 4	32	42	120	93	140
Argentina	161	69	181	147	132	140	124	151
Australia	98	100	106	84	148	154	151	61
India	19	2	1	1	1) 1	3	1) 4	2
Bulgaria	8	1	0	4	3	11	6	1) 1
Hungary	25	17	13	29	7	18	18	29
Poland and Lithuania	5	9	5	2	1	3	5	0
Romania	38	6	4	0	0	37	16	3
Yugoslavia	18	1	4	1	1	15	6	23
Turkey, Iran and Iraq	12	2	6	3	1	4	4	0
Algeria	6	10	13	12	9	6	10	5
Tunisia	1) 1	4	5	0	5	9	6	6
Morocco	1) 3	5	8	8	6	8	2	4
Chile and Uruguay	4	5	4	1) 1	1) 3	1) 1	2	5
Totals	*603*	*476*	*514*	*513*	*614*	*736*	*712*	*620*
U. S. S. R.	4	29	2	35	17	65	113	10
World exports	*607*	*505*	*516*	*548*	*631*	*801*	*825*	*630*

1) Net imports, not included in the totals.

87 per cent. in 1934-35). The minor exporting countries shared in the international wheat trade to a considerable extent, particularly the Danubian countries and Poland which together attained an export volume of 94 million bushels, which is 10 million bushels above their previous export maximum, recorded in 1931-32. It is worth while to note the remarkable recovery in wheat exports of British India, which reached 19 million bushels, since the country for ten years had not appeared on the international market except for insignificant exports and had even for three seasons been a net importer

As usual, the largest part of world demand was represented in 1936-37 by the import requirements of European countries who absorbed 438 million bushels, a total that considerably exceeded those of the three previous years but was much below the average exports of the previous period (570 million during the five years 1928-29 to 1932-33, and 610 million in 1923-24 to 1927-28) and also well below the pre-war average (560 million in 1909-10 to 1913-14).

The expansion in the European import in 1936-37 was due entirely to continental countries, the imports of the United Kingdom and Ireland registering a slight decrease owing to the combined effect of an increase in production and a decline in consumption

Most of the continental countries imported more wheat in 1936-37 than in the preceding year but the bulk of the total increase was due to the growth

Net imports of wheat into Europe (including flour in terms of wheat) *).

(Million bushels)

MONTHS	Year 1936 37			Year 1935 36			Year 1934 35		
	United Kingdom and Irish Free State	Other Euro pean countries	Total Europe	United Kingdom and Irish Free State	Other Euro pean countries	Total Europe	United Kingdom and Irish Free State	Other Euro-pean countries	Total Europe
August	16	9	25	16	11	27	18	14	32
September	16	13	29	15	13	28	20	16	36
October	19	13	32	21	14	35	18	13	31
November	20	13	33	21	13	34	17	12	29
December	20	16	36	20	10	30	20	12	32
January	12	14	26	15	9	24	12	10	22
February	21	16	37	14	8	22	16	10	26
March	21	22	43	20	8	28	20	11	31
April	15	24	39	18	10	28	17	11	28
May	16	32	48	20	12	32	22	10	32
June	17	32	49	21	12	33	18	10	28
July	18	23	41	19	12	31	18	13	31
Total Year	*211*	1) *227*	1) *438*	*220*	2) *132*	2) *352*	*216*	3) *142*	3) *358*

*) Aggregate net imports of normal importing countries after deduction of net exports, if any

1) After deduction of net exports of 9 million bushels from Czecoslovakia — 2) After deduction of net exports of 7 million bushels from Latvia Portugal and Sweden — 3) After deduction of net exports of 21 millions bushels from France, Estonia, Latvia and Sweden

of German and, in particular, Italian import requirements which followed the poor harvests of 1936. Greece, Austria and Latvia showed appreciable increases for the same reason. France recorded small imports, having been able to draw upon stocks to make up the deficit in its production. The remaining importing countries maintained their purchases abroad at the level of last year and they consequently show little change.

The non-European imports, according to a rough and indirect calculation, were about 160 million bushels (1) in 1936-37, an increase of 10 million on the previous year. These imports were again at a fairly high point because the United States again appeared among the importers and because Morocco and Tunisia, which are normally exporters, were importers in 1936-37 owing to their poor 1936 harvests.

Net imports of wheat into Europe (including flour in terms of wheat).
(Million bushels)

COUNTRIES	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
United Kingdom	198	205	200	218	215	240	225	205
Irish Free State	12	15	17	20	18	20	19	17
Germany	32	1) 0	10	1) 4	5	23	31	48
Austria	10	7	10	10	13	14	15	19
Belgo Luxemburg	39	39	40	43	39	47	48	42
Denmark	6	9	19	13	12	17	11	8
Spain	2) 7	0	0	0	0	11	0	3
Finland	4	4	4	4	4	4	5	6
France	8	8	1) 18	17	33	77	61	11
Estonia and Latvia	1	1) 2	1) 2	0	0	2	2	4
Greece	22	15	15	11	20	24	24	22
Italy	58	6	12	9	11	33	81	42
Norway	8	8	9	9	9	9	9	7
Netherlands	21	22	20	22	27	31	35	30
Portugal	0	1) 4	1	1	2	3	3	7
Sweden	0	1) 2	1) 2	1	3	7	5	7
Switzerland	18	17	19	18	23	26	23	21
Czechoslovakia	1) 9	2	1	0	12	25	17	13
Malta	3	3	3	3	3	2	3	3
Total	*438*	*352*	*358*	*395*	*449*	*615*	*617*	*515*

1) Net exports deducted from the totals. — 2) Rough estimate.

The preliminary results of the wheat crop in 1937.

Several large producing European countries have issued, since the publication of the August Bulletin, their first crop estimates. These are Germany, Poland and Czechoslovakia, which all report mediocre productions (Germany

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(1) Calculated by subtracting European imports from world exports and allowing for the increase or decrease of supplies afloat between the beginning and end of the year.

Area and production of wheat.

Countries	†) Area: 1937 — 1937/1938	1936 — 1936/1937	Aver 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	Aver = 100	†) Production: 1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	Aver = 100
	1,000 acres					1 000 centals			1,000 bushels				
Germany	4,878	5,151	5,471	94.7	89.2	94,731	97,597	106,000	157,882	162,659	176,664	97.1	89.4
Austria	642	624	554	102.9	116.0	8,911	8,426	7,996	14,852	14,042	13,327	105 8	111.4
*Belgium	423	424	391	99 8	108.4	. .	9,692	9,254	...	16,153	15,424	...	.
Bulgaria	2,861	2,822	3,023	101.4	94.6	38,540	35,583	30,592	64,233	59,304	50,985	108.3	126 0
*Denmark	.	295	272		...	...	6,834	7,214	...	11,390	12,023	...	...
*Spain	.	10,768	11,261		...	.	72,896	96,204	..	121,490	160,337	.	...
Estonia	167	162	140	102 9	119.4	1,737	1,460	1,398	2,895	2,433	2,330	119 0	124 3
Finland	242	215	99	112 4	245 0	3,594	3,265	1,509	5,989	5,442	2,515	110.1	238.1
*France	w) 12,772	12,712	13,276	—	—	. .	153,562	190,015	. .	255,932	316,685	...	...
Greece	2,118	2,109	1,755	100 4	120.7	20,387	12,803	13,145	33,977	21,338	21,908	159.2	155 1
Hungary	3,784	4,029	3,932	93 9	96 2	42,139	52,674	45,891	70,231	87,788	76,483	80.0	91.8
*Irish Fr. St		255	70		..	...	4,704	1,690	. .	7,839	2,817	...	..
Italy	12,815	12,683	12,260	101 0	104.5	176,585	134,566	160,287	294,303	224,272	267,140	131.2	110 2
Latvia	339	319	295	106.2	114 6	3,826	3,163	3,597	6,376	5,272	5,995	121.0	106 4
*Lithuania	523	485	507	107 8	103 0	...	4,766	5,582	..	7,942	9,304	...	...
Luxemburg	45	45	34	100.0	131.2	715	642	518	1,192	1,070	863	111.3	138 1
Malta	9	10	9	95.9	99.3	196	141	165	326	236	274	138 6	119.0
*Norway		75	38	.	..	.	1,257	620	..	2,094	1,034	..	...
Netherlands	320	374	315	85 6	101 6	7,716	9,345	8,353	12,860	15,575	13,922	82.6	92 4
Poland	4,232	4,305	4 333	98.3	97 7	39,463	47,015	43,549	65 770	78,357	72,580	83 9	90 6
Portugal	1,093	1,157	1,376	94 4	79 4	8,724	5,190	11,864	14,540	8,651	19,773	168.1	73 5
Roumania	8 618	8,481	7,893	101.6	109 2	81,602	77,231	57,949	136 001	128,716	96,579	105 7	140 8
Un. Kingdom													
England and W.	1,731	1,704	1,535	101 6	112 7	31,024	30,867	31,409	51,707	51,445	52,349	100.5	98 8
Scotland	100	94	76	106 7	132.0	2,464	2,128	1,935	4,107	3,547	3,226	115.8	127.3
N. Ireland	4	7	6	63 3	72 1	.	164	142	.	273	236	.	..
Sweden	722	695	701	103 9	102 9	15,895	12,915	14,264	26,492	21,524	23,773	123.1	111.4
Switzerland	174	172	149	101 3	117 1	3,697	2,682	2 978	6 162	4,470	4 963	137 9	124 2
Czechosl. 1)	2,108	2,296	2,229	91 8	94.6	29,758	33,350	33,607	49,596	55,582	56,011	89.2	88 5
*Yugoslavia	u) 5,342	5,553	5,312	—	—	. .	64,454	46,830		107,421	78,048		.
Total Europe	*46 998*	*47,447*	*46,179*	*99 0*	*101 8*	*611,704*	*571,043*	*577,006*	*1,019,491*	*951,723*	*961,660*	*107 1*	*106 0*
*U.S.S.R.	2) 101,678	96,116	87,437	105 8	116.3	.	...	571,965	.	...	953,256	.	.
Canada (w)	719	509	524	141 2	137 1	11,515	7,487	7,668	19 192	12,478	12,779	153.8	150 2
Canada (s)	24,855	24,780	25,106	100 3	99 0	101,399	130,044	200,458	168,999	216,740	334,097	78.0	50 6
United States (w)	47,079	37,608	35,540	125.2	132 5	412,887	311,408	311,058	688,145	519,013	518,430	132 6	132 7
United States (s)	21,119	11,212	16,354	188.4	129 1	118,683	64,469	96,724	197 805	107,448	161,206	184.1	122 7
Mexico	...	1,263	1,229	...	..	7,769	8,164	7,160	12,949	13,606	11,933	95 2	108 5
Total N. Amer.	*95,035*	*75,372*	*78,753*	*126 1*	*120 7*	*652,253*	*521,572*	*623,068*	*1 087,090*	*869,285*	*1,038,445*	*125 1*	*104 7*
*Cyprus	...	190	176	.	. .		1 105	1,103	.	1,842	1,838		.
Chosen	839	818	800	102.6	104.9	6,625	4,847	5,471	11,041	8,078	9,118	136 7	121 1
India	33,222	33,639	33 825	98 8	98 2	219,699	211,008	210,269	366,165	351,680	350,448	104 1	104.5
*Iraq	...	3,000	3) 2,417	..	...	.	11,795	7,441		19,658	3) 12,401		.
*Japan	..	1,686	1,440	...	...	..	27,117	24,220	..	45,194	40,365		
*Manchukuo	...	2,682	3,102	...	...		18,406	22,777		30,675	37,960		. .
*Palestine	...	..	472	. .		.	1,677	1,598		2,795	2,663		
Syria a. Leb.	1,349	1,316	1 253	102 5	107 6	8,378	9,599	8,680	13,962	15,998	14 467	87 3	96 5
*Transjordan	—	—	—	—	—	.	898	1,379		1,497	2,298		.
Turkey	8,323	8,843	7,983	94 1	104.3	84,188	83,099	55,732	140,311	138,496	92,884	101 3	151 1
Total Asia	*43,733*	*44,616*	*43,861*	*98 0*	*99 7*	*318,890*	*308,553*	*280,152*	*531,479*	*514,252*	*466,917*	*103 4*	*113 8*
Algeria	4,062	4,287	3,907	94 8	104 0	20,618	17,864	19,674	34,362	29,773	32,789	115 4	104 8
Egypt	1,421	1,464	1,549	97.1	91 8	27,226	27,421	26,293	45 376	45,701	43,822	99 3	103.5
*Eritrea	...	40	14	...	. .		249	52	.	414	86		
*Kenya 4)	...	.	41	...	.	.	. .	252			419		
Libya	111	80	46	137 7	241.6	592	251	149	987	418	249	235 9	396 1
Fr. Morocco	2,743	3,194	5) 3,019	85.9	—	11,023	7,341	5) 17,554	18,372	12 234	5) 29,255	150 2	—
Tunisia	2,219	1,221	2,019	181 7	109.9	11 023	4,850	8,554	18,372	8,083	14,256	227 3	128 9
Total N. Afr.	*10,556*	*10 246*	*10,540*	*103 1*	*100 1*	*70,482*	*57,727*	*72,224*	*117,469*	*96,209*	*120,371*	*122 1*	*97 6*
*Argentina	6) 17,594	6) 17,503	6) 17,954	100.5	98 0	..	148,702	135,462	.	247 832	225,766	..	.
*Chile	...	1,917	1,826	...	...	.	17,222	17,670	..	28,702	29,450	...	
*Uruguay	. .	998	1,116	..	...	. .	6,301	6,853	. .	10,501	11,421	...	..
*Un. S. Africa	...	2,133	1 763	. .	...	..	9,717	8,688	.	16,195	14 480	..	..
*Australia	13,700	12,351	13,982	110 9	98.0	. .	90,064	103,139	...	150,106	171 898	. .	..
*N. Zealand	...	...	266	...	. .	. .	4,290	4,976	...	7,150	8,293	...	...
TOTALS §	**196,332**	**177,681**	**179,333**	**110 5**	**109.5**	**1,653,320**	**1,458,895**	**1,552,450**	**2,755,529**	**2,431,469**	**2,587,398**	**113 3**	**106 5**

See notes on page 678.

10.6 per cent. below the average, Poland 9.4 per cent. and Czechoslovakia 11,5 per cent. below) and also Sweden, which on the other hand forecasts an abundant crop (11.4 above the average). Austria, Estonia and Latvia, which had already published their estimates for winter wheat crops, have completed their estimates with forecasts of spring wheat crops; their total crop appears better both in comparison with last year and with the average. Greece has revised her first estimate, reducing it by about 3 million bushels.

A certain number of countries have not yet published numerical estimates, among which must be mentioned France, whose production seems likely to be about 240 million bushels, a recent communication of the Government having indicated as probable a drop of 5 to 10 per cent., compared with last year; the estimates of Yugoslavia and Denmark are also still lacking, but, according to available information, the crops of these two countries seem to be large. Finally statistics for Spain are not available. For this country, as it is very unlikely, in the present state of things, that official statistics for the whole country could be obtained for a long time, it has been necessary to resort to a very approximate estimate; this has been calculated on the basis of a wheat acreage in 1937 about a quarter below that of 1936, and on the expectation of a yield per acre somewhat below the average. The result of these calculations indicates a total of 120 million bushels, which is practically the same as last year's but well below the average production of 160 million bushels of the five-year period 1931 to 1935.

In spite of these omissions and the provisional nature of present estimates, the calculation of the total European production in 1937 may be made with sufficient approximation and in any case on a sounder basis than our estimates of previous months, which were for most countries composed from expectations of probable yield based on crop condition and area under cultivation. According to statistics available at present, total European production however shows an almost negligible difference from our previous estimates; June forecasts predicted a total of 1,510 million bushels, in July they were raised to 1,550 million and in August reduced again to 1,520 million, the total estimated at present is 1,515 million bushels. According to this latter estimate total European production in 1937 would be 30 million bushels higher than that of 1936, but still 40 million bushels below the average production of the period 1931 to 1935.

Production of wheat in Europe.

Years	Area (thousand acres)	Production (million bushels)	Yield (bushels per acre)
1937 (estimate)	75,900	1,515	20.1
1936	78,000	1,484	19.0
1935	78,800	1,576	20.0
1934	77,600	1,549	20.0
1933	77,900	1,745	22.4
1932	75,100	1,490	19.8
1931	75,000	1,437	18.9
1930	73,600	1,360	18.4
1929	70,200	1,450	20.7
1928	71,400	1,409	19.8

If the probable crop results of importing and exporting countries are examined separately, important differences are noted.

Production of wheat in Europe by exporting and importing countries.

	European exporting countries			Other European countries		
	Area (million acres)	Production (million bushels)	Yield (bushels per acre)	Area (million acres)	Production (million bushels)	Yield (bushels per acre)
1937	25.7	437	17.1	50.2	1,080	21.6
1936	25.7	470	18.3	52.3	1,014	19.3
1935	25.5	386	15.1	53.4	1,190	22.4
1934 . . .	24.5	334	13.8	53.4	1,213	22.8
1933	24.5	455	18.6	53.4	1,290	24.2
1932	23.7	280	11.9	51.7	1,210	23.4
1931 .	26.0	463	17.8	50.2	974	19.4
1930	24.7	448	18.1	48.9	912	18.7
1929 .	22.5	378	16.8	47.7	1,072	22.5
1928	23.2	433	18.7	48.2	976	20.2

The production of the exporting countries (four Danubian countries, Poland and Lithuania) is below that recorded last year but well above the average; the production of the importing countries on the other hand is much better than last year, which was low, but considerably below the average. In both groups, however, results may be considered satisfactory. In the exporting group, however, the good crop was due chiefly to the large area under cultivation, which was as high as last year, and to the average yield per acre which though a little lower than 1936 considerably exceeded the average (17.1 bushels per acre in 1937 against 15.5 in the period 1931-35) The crop of the importing countries on the other hand was produced from a smaller area than last year and the average (especially owing to the large reduction estimated for Spain), and the yield per acre obtained is slightly below the average: 21.6 bushels per acre in 1937 against 22.5 in the period 1931-35.

For the U. S. S R. official statistics of the wheat crop are still lacking, but the information issued by the Government on the probable production of all cereals and leguminous plants for grain confirms the forecasts of a very abundant wheat crop that we had formulated on the basis of the very favourable progress of the season particularly in the months of June and July, which are the most critical for the important spring wheat crop.

The first official estimate of production in Canada and a new estimate of production in the United States, based on reports received at the beginning of September, make it possible to assess with sufficient approximation the results of the season in North America. The winter crops have yielded large harvests both in Canada, where they are of minor importance, and in the United States where they are more important than the spring crops. Unit yields were equal to the average and a good deal better than those of 1936 while the area cultivated is 25 per cent. greater than that of last year and the average. The spring crops were seriously affected by drought in Canada over large areas.

The total wheat production of Canada, now officially estimated at 188 million bushels, is larger than the estimate based on crop condition at 1 August but is still 18 per cent. below the poor crop of last year. The drought of this year was more serious than any previously experienced by Canada and was particularly severe in the southern areas of Saskatchewan and Alberta that had suffered a similar adversity a year ago. The average yield of spring wheat at 6.8 bushels per acre is lower than any recorded in a long series of years falling short even of the 9.5 bushels per acre of 1919, hitherto the lowest on record in Canada. The spring wheat crop of the United States enjoyed more favourable conditions than those experienced in Canada, for the drought which destroyed a considerable part of the crop in the latter country was broken in the United States at the moment when the shortage of moisture was becoming a serious threat to crops. The yield per acre obtained in 1937 (9.4 bushels per acre) is rather low in comparison both with the average yield of the period 1931-35 (9.8 bushels per acre) and with the yield of winter wheat (14.6 bushels per acre) but, owing to a large increase in area, the outturn is definitely larger than last year's and the average

The aggregate production of North America, according to the present estimates, is thus about 1,090 million bushels against 873 millions in 1936 and an average of 1,016 millions in 1931-35. The quality of the crop is good in Canada but rather mediocre in the United States.

In Asia (excluding China, Iraq and Iran), total production instead of being about the same as last year, as was expected last month, is rather better owing to the excellent results obtained in Turkey. It was expected that production in this country would be above the average but definitely below the record outturn of 1936. The Ankara Government, however, recently cabled to the Institute an estimate of 140 million bushels which not only surpasses the 1931-35 average by 50 per cent. but also exceeds the record crop of 1936. It follows that the total production of Asia will show an icrease of 27 millions, or 4 per cent., on 1936 and 74 millions, or 13 per cent., on the 1931-35 average.

In North Africa, the estimates previously published, underwent no change during the month and production remains rather mediocre on the whole but definitely better than in 1936.

To sum up the estimates received by the Institute during September, it may be observed that crops in Europe appear to be 5 million bushels smaller than month's estimates, those of North America and Asia are respectively 10 and 30 millions larger while those of North Africa have undergone no appreciable change. In the northern hemisphere as a whole, the crop appears to be 35 million bushels larger than the estimate of last month.

The 1937 estimates are provisional and subject to revision later but it can now be said that the 1937 crop in the northern hemisphere (the U. S. S. R. and China excluded) is the largest since 1933, it is at least as large as the 1932 crop and almost as large as the good harvest of 1931.

As for the southern hemisphere, the area sown this year in Australia is 11 per cent. greater than that of 1936 but about 2 per cent. below the average of the preceding five years. In Argentina, sowings in the extreme north and south

Wheat production in the northern hemisphere. 1)

(million bushels)

Year	Europe	North America	Asia	Africa	Total
1937 (forecast)	*1,515*	*1,090*	*630*	*120*	*3,355*
1936	1,484	873	603	98	3,058
1935	1,576	923	577	115	3,191
1934	1,550	817	555	136	3,058
1933	1,745	849	572	111	3,277
1932	1,490	1,213	503	128	3,334
1931	1,437	1,277	572	116	3,402
1926-30 (average)	1,341	1,315	518	108	3,282

1) Excluding the U. S. S. R. and China.

were hindered, the total area sown being about equal to last year but 2 per cent. below the average. The course of the season in Argentina and Australia has been rather uneven. In the middle of August the effect of drought on the growth of crops was causing apprehension in the Provinces of Córdoba, Santa Fé and the Pampa in Argentina and in Western Australia, New South Wales and Victoria in Australia. After the middle of August rain improved crop prospects. The Australian Government cabled the Institute on 15 September that general rains had fallen and that crop condition was satisfactory in the greater part of New South Wales, excellent in South Australia and better in Western Australia and Victoria. In New South Wales and Victoria, however, rains were not sufficient to ensure a satisfactory result, further moisture being necessary. It was reported on 20 September that further rains had fallen in Victoria. The Argentine Government reported on 21 September in a cable to the Institute that general rains had fallen in practically all the wheat areas and that the condition of the crops had consequently improved. Further rains were later reported to have been experienced in almost all parts of Argentina. The present situation of crops in the two large wheat-growing countries of the southern hemisphere is thus satisfactory and gives promise of an outturn at least equal to the average which, for the two countries taken together, is approximately 400 million bushels.

Preliminary results of the 1937 rye crops.

The European rye harvest, according to the preliminary estimates, is among the lightest of recent years. The decrease is 47 million bushels or 6 per cent. compared with last year, when results were also mediocre, and 102 millions, or 12 per cent., compared with the average of the five previous years. Compared with the average production of pre-war years, the deficit is 200 millions, or 20 per cent. The poor results of 1937 are due to the unfavourable weather conditions experienced in the principal producing countries of Central Europe. In Germany Poland and Czechoslovakia the autumn and the beginning of the spring were too warm and damp; snow was lacking and sowings were without protection

Area and production of rye.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Aver-age 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38		1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38	
				1936 — 1936/1937 = 100	Aver. = 100							1936 — 1936/1937 = 100	Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . .	10,336	11,154	11,056	92.7	93.5	149,235	162,844	171,328	266,492	290,793	305,945	91.6	87.1
Austria . . .	891	921	947	96 8	94.1	9,542	10,420	13,130	17,039	18,608	23,447	91.6	72.7
*Belgium . .	378	385	479	98.3	78.9	...	7,873	10,608	...	14,060	18,944	...	...
Bulgaria . .	460	434	517	105 8	88.9	5,475	4,469	4,880	9,778	7,980	8,714	122.5	112.2
*Denmark . .	...	326	350	..	...	...	4,630	5,490	...	8,267	9,804	...	. .
*Spain . .	...	1,471	1,466		..	...	10,110	12,150	...	18,053	21,697	...	...
Estonia .	367	338	363	108.7	101.2	4,489	3,384	4,204	8,015	6,044	7,507	132 6	106.8
Finland. . .	598	593	570	100.8	105.0	8,816	7,143	7,768	15,743	12,755	13,871	123 4	113.5
*France 7). .	1,639	1,635	1,712	100.3	95 8	...	15,764	18,042	...	28,150	32,218	. .	...
Greece . .	176	160	178	109 7	98.7	1,471	1,075	1,270	2,627	1,919	2,267	136 9	115.9
Hungary . .	1,516	1,607	1,568	94.3	96.7	13,621	15,744	15,978	24,323	28,115	28,532	86.5	85.2
*Irish Free State . .	...	2	3	...	...	...	38	48	...	68	85	...	...
Italy	259	261	285	99.2	90.9	3,221	2,915	3,517	5,752	5,206	6,281	110.5	91.6
Latvia . .	705	637	627	110.7	112.6	9,072	6,305	6,935	16,201	11,260	12,385	143 9	130 8
*Lithuania .	1,269	1,216	1,231	104.4	103.1	...	11,935	12,548	...	21,313	22,407	.	...
Luxemburg	19	19	19	100.0	101.3	273	251	270	488	449	481	108.8	101.4
*Norway . .	...	15	15	...	...	...	238	246	..	425	443	...	.
Netherlands.	557	554	449	100.6	124 0	10,163	10,673	9,168	18,149	19,059	16,371	95 2	110.9
Poland . .	14,311	14,410	14,160	99.3	101.1	122,798	140,302	140,952	219,283	250,541	251,701	87 5	87.1
Portugal . .	569	388	376	146.4	151.1	2,600	1,941	2,573	4,642	3,466	4,595	134.0	101.0
Romania . .	1,060	1,041	939	101.8	112.9	9,350	9,992	7,063	16,697	17,842	12,613	93.6	132.4
Sweden . .	526	530	547	99.3	96.2	9,590	7,779	9,393	17,125	13,891	16,773	123 3	102.1
Switzerland .	37	38	42	97.2	89.1	679	603	773	1,213	1,077	1,381	112.5	87.8
Czecho-slovakia . .	2,413	2,510	2,531	96.1	95.3	31,906	31,667	38,849	56,975	56,549	69,374	100.8	82.1
*Yugoslavia	w) 544	650	631	—	—	...	4,481	4,593	...	8,002	8,202	...	...
Total Europe	*34,800*	*35,595*	*35,174*	*97 7*	*98 9*	*392,301*	*417,507*	*438,051*	*700,542*	*745,554*	*782,238*	*94.0*	*89.6*
*U.S.S.R. .	...	...	62,627	...	...	..	...	483,652	...	...	863,667	...	...
Canada . w)	700	457	555	153.1	126.2	2,569	1,704	2,846	4,588	3,042	5,082	150.8	90.3
Canada . s)	193	178	157	108.6	122.6	812	694	770	1,450	1,239	1,375	117 0	105.5
United States . . .	3,960	2,757	3,021	143.6	131.1	29,047	14,310	19,027	51,869	25,554	33,977	203.0	152.7
Total N. Am.	*4,853*	*3,392*	*3,733*	*143.0*	*130.0*	*32,428*	*16,708*	*22,643*	*57,897*	*29,835*	*40,434*	*194.1*	*143.2*
Turkey . . .	875	909	670	96.2	130 6	10,540	9,889	5,824	18,822	17,660	10,400	106.6	181.0
*Algeria . . .	4	4	3	97.6	114.4	...	16	17	...	29	31	...	...
*French Morocco . .	...	7	3	...	...	...	20	12	...	35	22	...	...
*Argentina .	6) 2,100	6) 2,204	6) 1,731	95.3	121.4	...	4,189	5,626	...	7,480	10,047	...	...
TOTALS . .	**40,528**	**39,896**	**39,577**	**101.6**	**102.4**	**435,269**	**444,104**	**466,518**	**777,261**	**793,049**	**833,072**	**98.0**	**93.3**

See notes on page 678.

against the severe frost at the end of January and the beginning of February. Spring was characterized by droughty conditions which lasted from May to mid-July. As a result of these adverse conditions, production this year is 13 per cent. below average in Germany and Poland, and 18 per cent. in Czechoslovakia. Distinct decreases are similarly reported by Austria and Hungary. In the less important producing countries the crops are good and, in many cases, excellent, particularly in Bulgaria, Romania, Greece and the Baltic States.

Rye production in the northern hemisphere (1).

(in millions of bushels of 56 lb)

Years	Europe	North America	Asia and North Africa	Total (1)
1937 (*)	795	59	20	874
1936	842	32	20	894
1935	886	69	8	963
1934	886	22	8	916
1933	1,004	26	12	1,042
1932	933	48	8	989
1931	776	39	16	831
Average 1926-1930	*870*	*55*	*8*	*933*

(*) Provisional estimate. — (1) Excluding the crop of the U. S. S. R.

Production in the U. S S. R. appears to have been plentiful but there is as yet no official estimate.

In North America, the total production of Canada and the United States is definitely good Results are twice as large as last year's and 43 per cent above the average This large increase is partly to be ascribed to the increase in the cultivated area but it is mainly the result of the favourable course of the season

The crop in Turkey is plentiful.

The total production of the northern hemisphere (excluding the U. S. S. R.), despite the results recorded in North America and Turkey, is slightly below that that of 1936 and still smaller (nearly 10 per cent.) than the average production of the previous five years.

The preliminary results of the barley crop in the northern hemisphere in 1936.

The barley crop is reported as rather poor in Europe, a part of the crop having been damaged by drought in spring and the beginning of summer in the east central region of the Continent, particularly in Romania, Poland, Czechoslovakia and Hungary. In the United Kingdom also, a light production is expected. The German crop on the other hand is estimated as slightly above the average, while the Bulgarian crop seems to be large.

In the continent as a whole, excluding the U. S. S. R., production shows a drop of about 40 million bushels below last year (5 per cent.) and 70 million (about 10 per cent.) below the previous five-year average.

Area and production of barley.

COUNTRIES	†) AREA 1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935 1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	Aver = 100	†) PRODUCTION 1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	Aver = 100
	1 000 acres					1 000 centals			1,000 bushels				
Germany	4,195	4,041	3,958	103 8	106 0	75 380	74,937	71,837	157,045	156,122	149,663	100 6	104 9
Austria	397	403	415	98 5	95 6	5,684	6,130	6,123	11,841	12,771	12,757	92 7	92 8
*Belgium	61	74	86	82 5	71 1		1 748	2,016	...	3,642	4,199	...	.
Bulgaria	530	484	569	109 7	93 2	7,951	6,674	6,444	16,564	13,905	13 426	119 1	123 4
*Denmark		909	860				19,842	21 994		41,338	45,823		
*Spain	.	4,528	4,683				37 690	52 784	...	78,523	109,968		.
Estonia		250	263			1,953	1,915	2 280	4,069	3 989	4 750	102 0	85 7
Finland	324	324	312	100 0	103 7	3,909	4,165	3 958	8,143	8,676	8,245	93 9	98 8
*France 7)	1,756	1,790	1,795	98 1	97 8		22,467	23 516	..	46,807	48,993		
Greece	566	534	536	106,0	105 6	5,135	3,841	4,268	10,699	8,003	8 892	133 7	120,3
Hungary	1,180	1,161	1 152	101,6	102 4	10,497	14,514	13,832	21,868	30 238	28,818	72 3	75 9
*Irish Fr. St.		130	124	...			2,739	2,836	..	5,707	5,908		
Italy	479	482	510	99 3	93 9	5,181	4,246	4,944	10,793	8,845	10,300	122 0	104 8
Latvia	449	468	458	95 9	98,0	4,750	3,639	4,417	9,897	7,580	9,202	130 6	107 5
*Lithuania	524	529	501	99 1	104 6		5,128	5,369	.	10,683	11,185		
Luxemburg	5	5	8	100 0	66 3	64	65	99	133	134	207	98 8	64 1
*Malta 8)		5	6	.		.	83	113		173	236		
*Norway		149	143				2,531	2 420	.	5,273	5 042		
Netherlands	122	106	69	116 0	177,7	3,064	2,666	1,715	6 384	5,554	3 573	114 9	178 7
Poland	3,033	2 933	2,993	103 4	101 3	28,219	30,896	31,894	58 791	64,367	66,447	91 3	88 5
Portugal	194	193	171	100 4	113 2	957	769	942	1,994	1,603	1 962	124 4	101 7
Romania	3,780	3,980	4,411	95 0	85 7	19,071	35,535	28,929	39 732	74,033	60 270	53 7	65 9
Un Kingdom													
Engl and W	823	819	879	100 5	93 7	13,171	14,851	15 922	27,440	30,940	33 171	88 7	82 7
Scotland	82	72	78	113 5	105 3	1,725	1,478	1,626	3 593	3,080	3 388	116 7	106 1
*N Ireland	3	3	2	98 2	144 6		62	43	.	130	90		
Sweden	257	255	270	100 6	95 2	4,332	4,404	4,746	9,025	9 175	9 869	98 4	91 3
Switzerland	11	10	15	102 5	70 3	181	155	253	377	322	528	117 1	71 4
Czechosl .	1,661	1,571	1,686	105 7	98 5	23 322	22,462	26,570	48 589	46 797	55 354	103 8	87 8
*Yugoslavia	( ) 605	1,081	1,076	—	—		9 322	8,959		19 421	18,665		
Total Europe §	*18,338*	*18,091*	*18 753*	*101 4*	*97 8*	*214,546*	*233 342*	*230 799*	*446 977*	*486 134*	*480,842*	*91 9*	*93 0*
*U S S R	2) 21,574	2)20,150	18,869	107 1	114 3			145 729			303,607		
Canada	4,320	4,432	3,741	97.5	115 5	42,135	34,523	34 486	87,781	71 922	71 846	122 1	122 2
United States	11,166	8 322	10 596	134 2	105,4	108,525	70,777	101,177	226 094	147 452	210,785	153 3	107 3
Total N Am	*15,486*	*12 754*	*14,337*	*121 4*	*108 0*	*150 660*	*105 300*	*135 663*	*313,875*	*219,374*	*282 631*	*143 1*	*111 1*
*Cyprus .		110	107	...			908	777		1,891	1,618		
Chosen	2,685	2,616	2,481	102 7	108 2	30,112	22 292	22,578	62,734	46 442	47 038	135 1	133 4
*Iraq		2,000	3) 1,270				12,125	3) 6,449	.	25,262	3) 13,435		
*Japan		1,918	1,979				33,098	36 327		68,955	75,683		.
*Palestine			494				1,216	1,045		2,534	2 178		
Syria & Leb	795	739	766	107 5	103 7	5,953	6,837	6,322	12,401	14 243	13,170	87 1	94 2
*Transjord.	—	—	—	—	—		371	535		772	1,114		
Turkey	4,408	4 484	3,762	98.3	117 2	50,375	50,788	32,890	104,949	105,810	68,522	99 2	153 2
Total Asia	*7,888*	*7,839*	*7,009*	*100 7*	*112 6*	*86,440*	*79,917*	*61,790*	*180,084*	*166 495*	*128 730*	*108 2*	*139 9*
Algeria	2,951	3,120	3,240	94 6	91 1	12,487	14,150	16,486	26,015	29,480	34,347	88 2	75 7
Egypt	271	282	308	95 9	88 0	5,074	5,196	4,847	10,571	10,825	10,098	97 7	104 7
*Eritrea		91	56	. .			440	331		916	689		
Libya	346	179	407	193 1	85 2	1,243	261	1,019	2,589	543	2,124	476 6	121 9
F. Morocco	4,201	4,104	5) 3,684	102 4	—	16,755	33,651	5) 25 173	34,907	70,108	5) 52,444	49 8	—
Tunisia	1,503	741	1,240	202,8	121 2	4,409	1,653	5,027	9,186	3,445	10,472	266 7	87 7
Total Africa	*9,272*	*8,426*	*8,879*	*110 0*	*104 4*	*39,968*	*54,911*	*52,552*	*83,268*	*114,401*	*109,485*	*72 8*	*76 1*
*Argentina	6) 1,915	6) 1,925	6) 1,746	99 5	109 7	.	14,330	13,694	.	29,855	28,530		.
*Chile	..	178	161	..	..	.	2,169	2,394	...	4,519	4,987	..	. .
*Uruguay	..	49	18	..	.	..	381	129		794	268	. .	...
*N Zealand .	. .	.	19	. .	.	...	337	306	. .	703	637	...	...
TOTALS §	**50,984**	**47,110**	**48,978**	**108.2**	**104.1**	**491,614**	**473,470**	**480,804**	**1,024,204**	**986,404**	**1,001,688**	**103.8**	**102.2**

See notes on page 678

Barley production in the northern hemisphere (1).

(in millions of bushels of 48 lb)

Years	Europe	North America	Asia (2)	North Africa	Total (1)
1937 (*)	660	317	260	83	1,320
1936	698	220	239	115	1,272
1935	698	372	216	96	1,382
1934	717	184	216	133	1,250
1933	776	220	202	106	1,304
1932	776	382	188	110	1,456
1931	689	270	216	106	1,281
Average 1926-1930	*739*	*381*	*202*	*196*	*1,418*

(*) Provisional estimate — (1) Excluding the U. S. S. R., China, India, and some other Asiatic countries. — (2) Excluding China, India, Iraq and Iran.

The U. S. S. R. crop appears to have been heavy In North America both the Canadian and the United States crops are well above the 1936 production, which was pratically equal to the previous five-year average Asiatic production is very large, due chiefly to the very good results recorded by Turkey , North African production, on the other hand, seems bad.

In the northern hemisphere as a whole, according to these preliminary estimates, production appears to be slightly higher than last year and very nearly equal to the 1931 35 average.

The preliminary results of the oat crop in the northern hemisphere in 1936.

The European production of oats this year was approximately the same as those of 1936 and 1935 which were lower than any recorded since 1923 This poor result was due to bad spring weather conditions which reduced yields per acre, the reduction in area, which had continued gradually for several years, seems to have been arrested, and even among several of the larger producing countries an appreciable recovery took place in the cultivation of this crop.

Oat production in the northern hemisphere (1).

(in millions of bushels of 32 lb)

Years	Europe	North America	Total (1) (2)
1937 (*)	1,650	1,130	3,130
1936	1,651	1,075	2,776
1935	1,653	1,612	3,307
1934	1,680	883	2,611
1933	1,943	1,060	3,045
1932	1,853	1,667	3,555
1931	1,695	1,473	3,204
Average 1926-1930	*1,846*	*1,612*	*3,500*

(*) Provisional estimate. — (1) Excluding the U. S. S. R — (2) Including the Asiatic and North African crops.

Area and production of oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	6,995	6,866	7,791	101.9	89.8	125,216	123,865	135,125	391 296	387,074	422,261	101.1	92.7
Austria	698	713	755	97 9	92.4	9,189	9,421	9,180	28,715	29,439	28,687	97.5	100 1
*Belgium	521	534	648	97.6	80.5	..	12,196	15 245		38,111	47,640	...	...
Bulgaria	269	258	299	104.2	90.1	2,853	2,989	2,205	8 915	9,341	6,890	95 4	129 4
*Denmark		931	943	...	..	...	18,519	22 120		57,871	69,123	...	...
*Spain		1,358	1,917	...	..	...	12,183	14 774	.	38,070	46,169	..	...
Estonia		341	350	. .	...	2,886	2,509	3,106	9,018	7 842	9 706	115.0	92 9
Finland	1,122	1 087	1,142	103 2	98.3	14,467	14,357	14 815	45,208	44,864	46 295	100.8	97 7
*France 7)	7,908	8,217	8,312	96.2	95 1	.	92,914	105 481		290 354	329,626		...
Greece .	415	378	336	109.8	123 2	3,216	2,241	2,244	10 050	7,002	7 013	143 5	143 3
Hungary .	572	529	560	108 2	102.3	5,308	5,776	6 053	16,587	18,049	18,914	91 9	87 7
*Irish Free State		559	617	...		.	11,580	13,211	...	36 188	41,283	...	...
Italy	1,075	1,075	1,093	99.9	98.4	13,324	10,545	12,165	41,639	32,952	38,015	126 4	109 5
Latvia	828	838	784	98.8	105 7	9,029	6 270	7 808	28,214	19,595	24,401	144 0	115 6
*Lithuania	861	883	867	97.6	99.4	...	7 310	8 274		22 845	25,856	...	. .
Luxemburg	65	65	69	100 0	94.1	866	836	1 002	2,708	2,612	3 132	103 6	86.5
*Norway		210	231	...	.	.	3 775	3,835	.	11 797	11 983	...	
Netherlands	358	333	339	107 4	105.7	7,143	6 988	6 277	22 322	21,836	19 615	102 2	113 8
Poland	5,739	5,572	5,458	103.0	105.2	51,809	58,204	55 256	161 901	181 887	172 675	89 0	93.8
Portugal	723	657	442	110 1	163 6	2,360	1,847	1,962	7,376	5 770	6 132	127 8	120 3
Romania	1,906	1,986	2,035	96.0	93 7	8,388	18,676	14,446	26,211	58,362	45 144	44 9	58.1
United Kingdom													
Engl. and Wales	1,222	1 420	1,510	86.1	81.0	20,384	24,192	26 746	63 700	75,600	83 580	84 3	76 2
Scotland	816	829	840	98 5	97.1	15,232	14,381	15 178	47,600	44,940	47 432	105.9	100 4
*N Ireland	257	265	282	96.9	91 0	. .	5,796	5 878		18 112	18,370		
Sweden	1,658	1,654	1,629	100.2	101.8	27,889	27,293	25,755	87,151	85,291	80 484	102 2	108 3
Switzerland	27	26	35	104.1	77 5	514	440	647	1,605	1,375	2,022	116 8	79 4
Czechoslovakia	1,925	1,895	1,989	101.6	96.8	28,424	26,860	29,417	88,824	83,938	91,928	105 8	96 6
*Yugoslavia		913	929		.	.	7,342	6,686		22,942	20,894		.
Total Europe §	*26,754*	*26,522*	*27,456*	*100 9*	*97 4*	*348,497*	*357,690*	*369,387*	*1 089,040*	*1,117,769*	*1,154,326*	*97 4*	*94 3*
*U S S R	1) 43,193	2) 43,525	42,460	99.2	101.7	. .	.	329,727	..		1,030,389	...	..
—													
Canada	13,095	13,118	13,468	99 8	97.2	95,902	92,405	118,509	299,694	288,764	370,342	103 8	80 9
United States	35,933	33 213	37,553	108.2	95.7	363,573	252,512	310 094	1,136,167	789,100	969,044	144 0	117 2
Total N Am	*49,028*	*46,331*	*51,021*	*105 8*	*96 1*	*459,475*	*344,917*	*428,603*	*1,435,861*	*1,077 864*	*1,339,386*	*133 2*	*107.2*
Syria & Leb	27	28	30	93.9	87.6	206	241	278	644	752	868	85 6	74 2
Turkey	554	1,099	433	50 4	127.7	5,307	4,751	3,715	16,583	14,846	11,611	111 7	142 8
—													
Algeria	477	473	476	101.0	100.3	2,866	3,869	2,931	8,957	12,090	9,160	74 1	97 8
Fr Morocco	94	80	5) 66	116.8	—	926	425	5) 497	2 894	1,328	5) 1,552	218 0	—
Tunisia	126	62	65	204.0	195.1	441	220	481	1,378	689	1,502	200 0	91 7
Total N Afr	*697*	*615*	*607*	*113 3*	*114 6*	*4,233*	*4,514*	*3,909*	*13,229*	*14,107*	*12,214*	*93 7*	*108 3*
*Argentina	6) 3,114	6) 3,158	6) 3,434	98.6	90.7	...	17,461	19 061	...	54,564	59,566	...	...
*Chile	.	282	202	...	..	. .	2,206	1,966	...	6,894	6,144	...	...
*Uruguay	. .	213	181	..	...	...	1,449	841	...	4,529	2,628	...	...
—													
*New Zealand	...	...	79	. .	..	...	1,080	1,311	...	3,375	4,096	...	...
TOTALS §)	**77,060**	**74,595**	**79,547**	**103.3**	**96.9**	**817,718**	**712,113**	**805,892**	**2,555,357**	**2,225,338**	**2,518,405**	**114.8**	**101.5**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — *w*) Winter crop. — *s*) Spring crop. — 1) Including spelt. — 2) Area provided for in the Plan — 3) Average of three years — 4) Cultivation by Europeans only — 5) Incomplete data — 6) Area sown — 7) Areas on 1 May. — 8) Barley and meslin

The total production of North America, however, is large, the good results of the United States largely offsetting the mediocre outturn of Canada.

The total production of the northern hemisphere in 1937, excluding the U. S. S. R., is 13 per cent. larger than that of last year and almost reaches the average level of the previous five years.

G. CAPONE.

Current information from various countries on wheat, rye, barley and oats.

Europe.

Germany. During August rainfall was not uniform over Germany in the centre rain was excessive, in the provinces of Hanover, Westphalia and the Rhineland it was light and only in the remainder of the country was it satisfactory for crops. Although the weather was variable in different areas, it was possible to finish the housing of cereals by the end of August Only a little spring wheat and oats are still in the fields.

Austria: During August, the weather was very variable The rainfall was heavy especially in the third decade The wet weather hampered in places the harvesting of spring cereals. Compared with 1936, a considerable reduction in the production of winter rye and spring barley has occurred During the 1936-37 season there was a large increase in the acreage under spring wheat and rye, the former was sown in the plains, and the latter was sown more in higher districts to replace the autumn crops destroyed by the cold winter

Belgium. The weather was dry in the first half of August, wet during the third week and sunny towards the end Yields of cereals are very varied, they are mediocre for rye and oats, average for wheat and winter barley

The housing of cereals was completed under favourable conditions

Bulgaria: Weather conditions in August were on the whole favourable for the work of housing and threshing of cereals, which were begun as occasion offered despite frequent rains

At the beginning of the last decade of August the threshing of cereals was already completed almost throughout the country, except in the region of Sofia, where it was in full swing Bourgos wheat this year is of very good quality and weighs as much as 65 lb. per acre with a very low percentage of foreign bodies.

Varna wheat is also of good quality and weighs up to 62 lb. per acre. The barley crop is very satisfactory. The poor Romanian crop encouraged at first Bulgarian exports of barley, but Russian competition compelled Bulgarian exporters to reduce their prices.

Denmark: The condition of cereals on 1 September 1937 compared with that on 1 August 1937 and on 1 September 1936 was as follows:

	1 Sept 1937	1 Aug 1937	1 Sept 1936
Wheat	94	95	90
Rye	95	96	88
Barley	100	98	82
Oats	103	101	82

Irish Free State The weather during August was almost continuously warm and dry with bright sunshine and exceptionally little rainfall.

Conditions were ideal for harvesting which was carried out around the normal time. Indications point to light yields in wheat and to about average yields in oats and barley

France August was on the whole particularly hot and dry; there were almost everywhere stormy rains in the second decade but they were insufficient to bring the moisture required by the soil In the second decade dry, cold north winds prevailed in some departments in the west On the whole temperatures were favourable. Harvesting was greatly facilitated by the persistent drought, particularly in the north and east, and was completed about three weeks earlier than usual. Threshings of wheat up to the end of August confirm expectations, the crop will be 5-10 per cent. smaller than last year and slightly below the average, save in some parts of the north and west On the other hand, the grain is generally of excellent quality both in moisture content and specific weight, the latter frequently attaining 65 lb per acre. Conservation will thus be particularly easy this year Unit yields of rye and winter oats are satisfactory but those of spring oats, of which sowings were very late owing to the bad weather, suffered from excessive humidity at sowing and excessive drought at harvesting and will be rather mediocre, especially on light lands For the same reasons barley, particularly spring barley, will give only a small crop Buckwheat, which had a good appearance in July, suffered greatly from the drought in August and unit-yields will certainly be small

Cultivation and removal of stubble were impossible on heavy lands

Greece Harvesting of cereals was completed in most areas by the middle of August Threshing was in full swing in nearly all parts except Macedonia where rain hindered work To judge from the threshing results, wheat yields this year are very satisfactory and considerably better than last year's

According to the most recent estimate, the area cultivated to meslin this year is about 161,000 acres against 155,500 in 1936 and 133,000 on the average of the five years ending 1935; percentages 103 9 and 120.7 The corresponding production is estimated at about 974,000 centals (1,680,000 bushels) against 867,000 (1,495,000) and 757,000 (1,306,000), percentages, 112.4 and 128 7.

Hungary During the three weeks from 8 to 28 August, temperatures were normal at the beginning, high later and below normal at the end of the period. Rain was frequent the quantity of precipitation being above the average

Threshing of cereals was impeded by the wet weather The bushel weight of the crops is as follows —

	lb per British bushel	lb per American bushel
Wheat	63-67	61-64
Rye	53-61	51-59
Barley	45-55	34-53
Oats	29-40	28-39

Italy: Weather conditions in the first fortnight of August were variable in north Italy with rain, showers and hail-storms in some provinces; conditions in central Italy were good on the whole and they were almost normal in the south. In Sicily drought prevailed In the second decade the weather was very variable; on the mainland there was frequent rain and a noticeable drop in temperature, but on the islands it was dry. Preparations for the next sowings are in progress.

Latvia. During August the weather was hot and sunny and the temperature higher than usual at this period. Rainfall was normal on the whole, but in some areas continuous, heavy rain hampered field work.

Lithuania: During the first decade of August, the weather was wet and during the two later decades fine, dry and hot. The cereal crop, not being completely saved at the beginning of the month, has partly suffered from rain

Luxemburg The dry weather of August favoured the housing of cereals, whose quality is satisfactory. The production of mixed grain is estimated at 78,000 centals (134,000 bushels), against 70,000 (121,000) in 1936 and an average of 113,000 (195,000) for 1931-35. Percentages 111 2 and 68 9.

Netherlands. At the end of the second half of July the crop condition of cereals was below average, and in the following period general conditions were not much improved However the weather was favourable for the ripening and harvesting of the grain. The quality of the crop was good but production mediocre The yield of winter and spring barley are very different between districts Next to places with good yields are others with poor ones For oats on the other hand a good crop was forecast both as regards quality and quantity

Poland According to the report of the Central Statistical Bureau, the agricultural season this year has been very unfavourable The wet autumn and winter had hampered the sowing and germination of winter cereals. The bitter frosts and winds did considerable damage to the shoots, which had been poorly protected by the snow, almost everywhere but particularly in the western and central provinces. The cool spring with its hail and violent winds was as unfavourable to the growth of winter cereals as to the sowing of spring cereals. The drought which lasted from mid-May to mid-July also hindered the growth of cereals Consequently, the production of wheat, according to the first approximate estimates, which are subject to revision, is lower this year than last year throughout the country except for the provinces of Wilno and Tarnopol As for the other cereals, rye and oats have also suffered appreciable damage almost everywhere, while barley has suffered a little less

Only in the province of Wilno have the general conditions of the agricultural season been rather favourable There the production of all cereals is higher than last year

The cereal harvest was carried out early and under good conditions almost everywhere, except in the province of Pomerania where rain hampered the harvest and housing of the grain.

Romania Toward the end of the first decade of September preparation of the land was in progress throughout the country in excellent conditions Here and there sowing of winter wheat had even been commenced.

During the current agricultural season the 400 tractors purchased by the Ministry of Agriculture and controlled by the Chamber of Agriculture will come into use. They are to be used in the first place for deep ploughing on the small holdings and represent the first step in the mechanization of Romanian small holdings.

United Kingdom: The principal feature of the weather in England and Wales during August was the marked deficiency of rainfall over the greater part of the country, particularly in the southern and eastern districts. Throughout the month conditions were warm and dry with temperatures in most places above the average although towards the close of the month slightly cooler conditions prevailed. The amount of sunshine for the whole month was below average in eastern districts, but in the west there was a considerable excess. Weather conditions have, however, been very favourable to agriculture, particularly as regards harvesting.

In most districts in Scotland also, the weather during the earlier part of the month was dry and warm, although rather dull. Later it became rather unsettled with frequent showers. The broken and changeable weather interfered to some extent with the steady progress of harvesting operations but on the whole conditions were favourable for crops and livestock.

The corn harvest became general everywhere by the middle of the month and harvesting operations are proceeding under good conditions. Wheat greatly improved in condition in the early part of the month, although late sowings are inclined to be on the thin side. The yield and quality appear to be good generally, but in some districts the grain is reported to be rather small. For the whole of England and Wales the present forecast of the yield per acre is 18 centals (30 bushels) which is about 2 centals (3 bushels) per acre less than the average yield for the ten years 1927 to 1936 and about 0.3 cental (0.5 bushel) below the yield obtained last year. The barley crop has improved considerably although in many districts it is short in the straw. The grain is reported to be in good condition, however, and of fair quality. The yield of barley is estimated to be about 16 centals (33 bushels) per acre which is about 2 centals (5 bushels) below the average for the preceding ten years and about 2.1 centals (4.4 bushels) less than the yield in 1936. Oats are a variable crop. Winter oats are good but spring sown are a light crop and short in the straw. The quality of the grain is fair and the average yield is estimated at approximately 17 centals (52 bushels) per acre which is about 0.6 cental (1.7 bushels) less than last year and about 1 cental (3 bushels) below the average for the previous ten years. Forecasts based on conditions at the end of August are given in the tables.

The quality of the cereal harvest in Scotland is generally good but considerable lodging has occurred.

Switzerland. Following the generally fair weather of the first fortnight of August, harvesting was carried out rapidly and almost without interruption. However in the higher districts the housing of late varieties was rather retarded, so that the quality has suffered somewhat. But generally speaking the cereal crop was satisfactory both in quantity and quality.

Czechoslovakia. Fine warm weather prevailed almost everywhere in the first decade of July save in the west, where there were torrential rains. At the beginning of the second decade the weather became cooler and wetter, particularly in north-central Bohemia and the Danube plain, but remained very variable up to the end of July. The fine warm, though still changeable, weather at the beginning of August continued until the middle of the month. The latter half of the month was characterized by the return of rainy, though still warm, weather almost everywhere, and by floods in Slovakia.

Thanks to the favourable weather in the first half of August, harvesting, threshing and bringing in of cereals was easily and rapidly carried out almost everywhere, save in some mountain areas, where the harvesting of oats especially was hindered by rainy weather.

Unit-yields of wheat, rye and barley are smaller this year but quality, especially of wheat, is good, though that of oats, which suffered from excessive humidity, is rather bad. Surface preparation of the soil was carried out in due time but preparations for autumn sowings were hindered in several areas by rain.

According to the most recent estimate, the area cultivated to meslin this year is about 14,700 acres against 15,500 in 1936 and 17,800 on the average of the five years ending 1935; percentages, 95.1 and 82.4. The corresponding production is estimated at about 177,700 centals (306,400 bushels against 201,600 (347,600) and 246,300 (424,700); percentages, 88.1 and 72 2.

Yugoslavia· During the first decade of August the weather was very variable and rather wet; during the scond decade, though still variable, it became hotter and drier. The third decade was marked by the return of cool, rainy weather in almost all parts. In the first decade of September, however, the weather, though still variable, again became finer and warmer.

U. S. S. R : The continuance of the variable, rather cloudy and rainy weather during the two last decades of August further hampered the work of harvesting and threshing of cereals. The return of fine weather towards the end of the month and at the beginning of September enabled part of the delay in the harvest, compared with last year, to be made up.

The stacking, however, of cereals harvested with ordinary machines as well as threshing were still very late.

On 10 September the harvest of cereals was completed over an area of 202,422,000 acres, or 91 per cent of the plan, as against 198,172,000 acres, or 92 per cent. of the plan, at the same date last year

Threshing was completed over an area of 130,938,000 acres, or 65 per cent. of the plan, against 153,917,000 acres, or 78 per cent of the plan at the same time last year

Among the various Soviet republics, Ukraina, White Russia, Azerbaidzhan, Turkmenistan and Uzbekistan had on 10 September finished the harvest almost up to 100 per cent. of the amount fixed by the plan, but the work of stocking and threshing were not well advanced

As there is no official estimate of the cereal crop this year, we quote the first approximate estimates, made by the Soviet press According to these, the total production of all cereals this year will be 2,535,000,000 centals against 2,380,000,000 established by the plan, with an increase of 50 per cent compared with last year's production aud one of 40 per cent on the average of the five years 1931-35.

The high cereal production this year is attributed as much to the favourable weather conditions that prevalied in the main producing areas as to the wider use of machines and the improvement in methods of cultivation

For the autumn sowing of cereals for the coming season, the Government had fixed at the beginning of August the size of the acreage and the dates by which sowings should be completed (see August Crop Report).

On 10 September the sowing of winter cereals was completed over an area of 64,021,000 acrees, or 70 per cent. of the plan against 63,411,000, or 67 per cent of the plan at the same time last year. At the beginning of September in the fields of Kolkhoz in northern and central districts the first young plants of winter cereals had sprouted.

America.

Argentina (Telegram of 21 September): The almost general rains have improved crop condition over a large part of Buenos Aires, Santa Fé, Entre Rios, Córdoba and the National Territory of the Pampa and have also favoured late sowings and germination.

Canada Rapid progress was made in the last days of August with the harvesting of the prairie grain crops High temperatures and an almost complete absence of rain in Manitoba and Saskatchewan enabled work to go ahead without interruption. Yields in Manitoba of durum and rust-resistant varieties were satisfactory on the whole. Common spring wheat also yielded and graded well except in dry sections and while rust has done damage to the susceptible varieties, the injury was not extensive.

In Saskatchewan, while yields for the province are very low, more than half the wheat was expected to be of first grade and most of the remainder second or third. Dry weather continued in this Province, forcing maturity among late crops with a consequent deterioration of yield prospects. Good yields were expected over much of Alberta Grasshopper damage was fairly extensive among green crops in all three Provinces and there were indications of heavy infestation next season.

The first official estimates of grain production appear in the general tables. The total wheat outturn is placed at 112,915,000 centals (188,191,000 bushels) compared with 137,531,000 centals (229,218,000 bushels) in 1936 and an average of 208,126,000 centals (346,876,000 bushels) in the years 1931-1935

United States According to the September estimates, the total wheat production of the Unites States now appears to be 531,570,000 centals (885,950,000 bushels) compared with 375,877,000 centals (626,461,000 bushels) in 1936 and an average of 407,781,000 centals (679,636,000 bushels) in the five years 1931 to 1935 Percentages: 241.4 and 130.4 The estimates for the other cereal crops show no substantial changes from the figures issued in the previous month.

Weather was variable during the first week of September with rain still needed in the middle west Later conditions were mostly seasonable and the south benefited from a cessation of heavy rain.

The threshing of spring wheat was practically finished at the beginning of September Sowing of winter grains progressed but there was some delay in operations in central and western areas owing to the dryness.

According to a cable received on 23 September, the absence of rain in the central and western wheat belt has delayed preparations for seeding so that the winter wheat outlook is unfavourable in all States north of Oklahoma and Arkansas and westward to the Rockies

Asia.

Japan The weather conditions of August were favourable for the crops of spring wheat and barley.

Palestine: The threshing and winnowing of cereal crops has almost been completed The sample of grain is excellent due to the absence of easterly winds at the flowering season and when the setting grain was in a vulnerable stage Yields are much in excess of those of last year for the country as a whole Very considerable amounts of barley are finding a market overseas

Africa

Algeria: The high temperatures and low relative humidity of August caused desiccation, all the more since soil moisture reserves are very small. Violent scirocco, frequently sand-laden occurred on several occasions. The end of the month was characterized by violent storms accompanied by torrential rains and hail, the former appreciably lowering temperature.

Threshing was completed and results are generally satisfactory both in unit-yield and specific weight. Wheat is well dried and has a high specific weight.

Egypt: Harvesting of summer, or *sefi* millet is about finished in the provinces of Upper Egypt with the exception of Asuân Province where the harvest is being carried out in the early cultivations. Harvesting is also being carried out in the general cultivations in the rest of the localities. The unit yield is expected to exceed the average slightly.

Sowing of autumn, or *nili* millet was over, except in Qena and Asuân provinces, where the general cultivation is in progress. Hoeing, thinning and manuring are being carried out. The state of germination and growth is satisfactory.

French Morocco: Great heat and sand-storms were experienced in August, during the last decade of which there were violent storms in some parts of eastern Morocco. Threshing is completed and has borne out the earlier forecasts of low yields Preparatory work has been done to store water, supplies of which will decline in autumn.

Tunisia: August was mainly dry and hot with several periods of scirocco. Threshing of cereals is finished Yields are average on the whole, but quality is good and specific weight high.

Union of South Africa: In Cape Province in the south-west winter cereals had made excellent progress up to the end of July. Rainfall was plentiful and in parts even excessive. Also in the south-coast area cereals were doing well In the rest of the Province drought accompanied by cold winds is seriously threatening the crops In Natal the drought had practically destroyed winter crops at the end of July In Transvaal the weather has been cold Winter cereals, particularly wheat, are doing well, especially in the low-lying and irrigation areas

Oceania

Australia Weather during last month in Western Australia was favourable and there was an improvement in the condition of the crop in much of the State Crop condition in South Australia was excellent In New South Wales rainfall was nearly general and there was an improvement in crops on large areas, conditions was satisfactory in the middle of September but rains were necessary to ensure a satisfactory harvest Condition was better also in Victoria but rain was required.

Current information on maize.

Austria The condition of maize on 1 September was 2 0 against 2 1 on 1 August this year and 2 4 on 1 September 1936 Earing was generally satisfactory though formation of grain was uneven.

Bulgaria: The frequent rains and rather warm weather during August encouraged the growth of maize A very variable production between different areas is forecast. On the whole the crop appears average and even rather good along the bank of the Danube between Vidin and Orebrovo. On the other hand, the crop had suffered from drought in the areas of Svichtov and Routchouk, where the crop was badly threatened In the areas of Bourges and Varna, where maize had also suffered from drought, the recent rains brought a notable improvement

France. The crop suffered generally from drought in August but in the southeast it had a very good appearance.

Area and production of maize.

COUNTRIES	AREA					PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	...	207	195	...	...	...	2,547	2,423	...	4,549	4,327	...	...
Austria	...	158	158	...	...	...	3 767	2,990	...	6,727	5,340	...	...
Bulgaria	1,441	1,486	1,757	96.9	82.0	...	19,536	19,952	...	34,887	35,629	...	...
*Spain	...	...	1,076	...	...	...	...	15,640	...	...	27,929	...	...
France	...	913	844	...	...	...	12,515	11,253	...	22,348	20,095	...	...
Greece	1) 647	1) 639	1) 614	101.2	105.2	...	5,051	4,616	...	9,019	8,244	...	...
Hungary	2,956	2,810	2,812	105.2	105.1	60,394	57,168	40,898	107,846	102,086	73,033	105.6	147.7
Italy (2)	3,197	3,235	3,246	98 8	98.5	...	59,992	53,968	...	107,128	96,372	...	...
Italy (3)	458	445	344	102 9	133 0	...	7,133	4,568	...	12 737	8,156	...	...
Poland	...	218	232	...	...	...	2,314	2,063	...	4,132	3,684	...	...
Portugal	...	1,057	1,014	...	...	...	6,767	7,715	...	12,084	13,778	...	...
Romania	12,795	12,999	12,124	98 4	105 5	91,311	123,724	118,327	163,055	220,936	211,299	73.8	77.2
Switzerland	...	2	2	...	...	...	47	55	...	83	98	..	.
Czecho- slovakia (4)	1) 239	1) 212	1) 8) 208	112.9	114.9	4,119	4,163	8) 3,060	7,356	7,433	8) 5,464	99 0	134.6
Czecho- slovakia (5)	...	1) 193	1) 8) 163	...	...	...	2,760	8) 1,614	...	4,928	8) 2,883	...	...
Yugoslavia	...	6,683	6,215	...	...	...	114,211	87,114	...	203,949	155,561	...	...
Total Europe	...	*31,257*	*29,928*	. .	...	...	*421,695*	*360,616*	...	*753,026*	*643,963*	...	...
*U. S. S. R.	7) 6,618	7) 6,799	9,181	97.3	72.1	...	...	86,463	...	...	154,398	...	...
Canada	161	164	145	97.9	110.7	...	3,406	3,374	...	6,083	6,025	..	...
United States	96,146	92,829	102,079	103.6	94.2	1,427,597	856,423	1,307,192	2,549,281	1,529,327	2,334,271	166.7	109 2
*Mexico	...	...	7,786	...	...	...	...	41,597	...	. .	74,281	...	...
Total N. Am.	...	*92,993*	*102,224*	..	...	...	*859,829*	*1,310,566*	...	*1,535,410*	*2,340,296*	...	...
*China	...	11,506	11,185	...	...	...	135,146	138,958	...	241,333	248,140	...	. .
Manchukuo	...	3,199	2,736	...	...	...	46,772	38,313	...	83,522	68,416	...	...
*Palestine	...	...	6) 12	...	...	...	...	6) 64	...		114	...	...
Syria & Leb.	64	65	59	99.5	108 8	...	646	585	.	1,153	1,045	...	...
Turkey	...	1,041	987	...	...	...	15,120	10,673	...	27,000	19,059	...	...
Total Asia	...	*4,305*	*3,782*	...	...	...	*62,538*	*49,571*	...	*111,675*	*88,520*	...	...
Algeria	...	16	21	..	...	...	77	126	...	137	225	...	...
Egypt	...	1,578	1,829	. .	...	...	35,170	38,162	...	62,805	68,146	...	...
Eritrea	...	20	26	...	...	...	90	214	...	161	382	...	...
*Kenya 9)	...	...	136	...	...	...	...	1,852	...	...	3,307	...	...
French Morocco	1,087	1,124	911	96 7	119 4	2,932	6,644	3,443	5,236	11,865	6,148	44.1	85.2
*Italian Somalia	...	...	30	...	...	...	220	322	...	394	574	...	...
Tunisia 10)	...	20	48	. .	...	..	55	130	. .	98	232	...	...
Total N. Afr.	...	*2,758*	*2,835*	...	...	...	*42,036*	*42,075*	...	*75,066*	*75,133*	...	...
Argentina (1)	...	(16,047)	(16,266)	...	...	—	—	—	—	—	—	—	—
Argentina (11)	...	11,935	11,152	...	...	...	208,117	187,441	...	371,639	334,718	...	...
*Chile	...	121	121	...	...	...	...	1,521	...	...	2,717	...	...
Un. of S. Afr.	...	6) 5,808	6) 5,839	...	...	...	49,626	33,975	...	88,618	60,669	...	...
TOTALS	...	**149,056**	**155,760**	...	...	...	**1,643,841**	**1,984,244**	...	**2,935,434**	**3,543,299**	...	...

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* Not included in the total. — 1) Area sown. — 2) Maize sown in spring — 3) Maize sown in summer. — 4) Crop grown alone. — 5) Mixed crop. — 6) Average 1934 and 1935. - 7) Area fixed by the plan. — 8) Average 1931 to 1933 and 1935. — 9) Cultivation by Europeans. — 10) Maize and sorghum. — 11) Area harvested.

Greece: In the unirrigated districts, where it rained in the first half of August, crop condition was satisfactory, but where there was no rain, particularly in Epirus and the Peloponnesus, it was affected by drought and considerably endangered. In the irrigated districts condition was better.

Hungary: Maize was in very good condition on 28 August. Ears were generally large, well developed and full. For complete ripening, the crop needed warmer and drier weather.

Italy: At the end of August the maize harvest was in progress: production is considered good.

Romania: On 15 August crop condition was 2.9, according to the system of the country, that is, somewhat below average (the Romanian Government has adopted the following classification of condition: 5 = very good; 4 = above average, 3 = average, 2 = poor, 1 = very poor). In consequence of the rains at the end of August, crop condition greatly improved.

Czechoslovakia: The excessive soil moisture hinders the ripening of maize, which is growing unevenly and with difficulty, particularly in Slovakia. A satisfactory crop, however, is expected.

Yugoslavia. The growth of maize was encouraged by the very variable weather of the two first decades of August.

The frequent rains that fell almost throughout the country in the last decade hindered the ripening of the crop.

Argentina (Telegram of 21 September) The almost general rains in September favoured preparations for sowings.

Canada The condition of the maize crop on 31 August was 81 compared with 89 on 31 July and 74 on 31 August 1936.

United States Some decline in the general condition of the maize crop took place during August. Crop condition at 1 September was 76.0 per cent as compared with 83.2 per cent a month earlier. The September estimate of producton is 1,427,597,000 centals (2,549,281,000 bushels) compared with an August forecast of 1,488,809,000 centals (2,658,748,000 bushels).

Conditions were favourable in the first half of September but much of the crop in western areas was maturing too rapidly.

According to a cable received on 23 September, rain is needed in the eastern maize belt.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area:

	1937 acres	1936 acres
Area harvested in July	429,500	398,100
Area harvested from 1 January to 31 July . .	3,528,500	3,752,600
Area of standing crops at the end of July . . .	969,700	1,125,800

Egypt: Sowing of autumn, or *nili*, maize was over in Lower Egypt and Middle Egypt by the middle of August, it is being continued in the small late areas of Upper

Egypt Flowering and formation of cobs were observed in the early sown cultivations of Lower Egypt. Hoeing, thinning and manuring are being carried out. The state of germination and growth is satisfactory.

French Morocco Harvesting and threshing are in progress on the coast and in the south Unit-yields are far from attaining those of last year.

Tunisia Harvesting of maize and sorghum is completed. Yields are satisfactory.

Current information on rice.

Italy According to the most recent estimate, the area cultivated to rice this year is 340,000 acres against 358,000 in 1936 and 339,500 on the average of the five years ending 1935; percentages, 97.5 and 102 8.

During August the weather was on the whole favourable to the growth of rice. crop condition is reported to be good.

India Moderate to heavy rainfall was experienced in Bihar, the United Provinces and the Central Provinces during the first half of September Crops were in fair to good condition at the middle of the month. Weather in Assam was seasonable and crop prospects are fair.

French Indo-China In the east and centre of Cochin-China the very irregular rains of July somewhat hindered operations and in some provinces transplanting was prevented by the inadequacy of the precipitation, in the low-lying padis, and those near watercourses, however, transplanting made good progress and sowings of mid-season and season rice were also begun. In the west of Cochin-China the drought was less pronounced and shorter, and sowings of early and mid-season rice were made in due time, in Vinhlong, Travinh, Soctrang, Sadec and Chaudoc preparation of the soil was carried out normally while in Travinh, Vinhlong and Sadec transplanting of early varieties and in Cantho, Soctrang and Baclieu that of mid-season varieties was begun Tree-month rice had a very good appearance Early rice transplanted in June recovered with difficulty. In Cholon, Mytho, Travinh and Soctrang the young plant generally suffered from drought but recovered with the renewal of the rains Floating rice was also greatly affected by the drought in Chaudoc but on the low-lying lands there and in Longxuyên it was in part submerged by excessive precipitation

In Cambodia the rains in the middle and at the end of July permitted general preparation of the padis and sowing of the nurseries in areas where these operations had not already been carried out. Growers who had been able to sow very early profited by the favourable weather of July to transplant. Floating rice has suffered from drought.

In Tonkin preparation of the padis for and transplanting of rice of the tenth month proceeded actively in July and were almost finished by the end of the month. In general, thanks to the abundant rains, conditions were good. Growth was good. In some provinces, however, lack of water hindered transplanting. Hoeing of early varieties was begun.

In North Annam rice of the eighth month was flowering in Thanhhoa and development of rice of the tenth month was normal. Transplanting had been completed in Thanhhoa. In Central and South Annam rice of the eighth month showed good development, while rice of the tenth month was being sown.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area:

	1937 acres	1936 acres
Area harvested in July:—		
Wet padi	721,100	834,700
Dry padi	7,200	6,400
Area harvested from 1 January to 31 July.—		
Wet padi	7,030,700	7,061,600
Dry padi	943,500	942,200
Area of standing crop at the end of July:—		
Wet padi	1,497,000	1,498,700
Dry padi	22,500	36,300

British Guiana: It was reported in July that there had been heavy rains which had somewhat hampered both the milling of rice and planting for the new crop.

British Malaya: During July, conditions were as follows: In Kedah the rainfall was below the average for the month and was poorly distributed. In Penang, precipitation was above normal except in the extreme south and north of Province Wellesley, where it was below the average for the month. Exceptionally heavy rain for the time of year fell throughout Malacca and this wet belt extended to Seremban in Negri Sembilan and to Tangkak in Johore. Elsewhere in the Peninsula, except for local exceptions, the comparatively dry conditions normal for July prevailed generally, with a tendency to more unsettled weather at the end of the month.

In Kedah, planting was delayed on account of water shortage. The Sungei Acheh area of Province Wellesley experienced shortage of water through the Sungei Ijok diversion scheme not yet being brought into operation and a continuance of dry weather also delayed operations in Krian. In the Sungei Manik area of Perak the later irrigation and planting dates adopted resulted, as was expected, in a long delay between turning water into distributaries and saturation of the dry land. In the Panchang Bedena area of Selangor some further progress was made in clearing stumps and timber before the next padi season commences there. In Pahang, Malacca and Kelantan seasonal operations continued satisfactorily except that in Kelantan frequent showers delayed the planting of dry padi.

Egypt: The growth of summer, or *sefi* rice was progressing appreciably owing to favourable weather and adequacy of the irrigation water, and, the formation of ears began in the early sown cultivations. The work is being carried out in the irrigation, drainage and weeding, as well as in transplanting and manuring in the later-sown cultivations. Crop condition is satisfactory. Sowing of the automn, or *nili* rice crop was over and germination and growth were satisfactory.

Current information on potatoes.

Germany: In districts with heavy rainfall the leaves of potatoes have been damaged by blight.

Austria. Potatoes showed healthy top growth at the beginning of September. Yields of the early crops are very high but wet weather impeded lifting. The main crop also gave promise of a good production but suffered from excessive wet in some areas.

Belgium Potatoes have suffered from blight mediocre yields are forecast particularly from fields planted with uninspected tubers

France Potatoes suffered severely from drought in August and are backward in growth the late varieties in particular Lifting has begun in several *departements* Yields are generally above average

Potatoes

COUNTRIES		AREA 1937	AREA 1936	AREA Average 1931 to 1935	% 1937 1936 = 100	% 1937 Aver = 100	CROP CONDITION †) 1 IX 1937 a)	1 IX 1937 b)	1 IX 1937 c)	1 VIII 1937 a)	1 VIII 1937 b)	1 VIII 1937 c)	1 IX 1936 a)	1 IX 1936 b)	1 IX 1936 c)
		1 000 acres													
Germany	s)	326	332	548	98 1	59 5	—	—	—	2 7	—	—	—	—	—
	t)		6 569	6 504			—	—	—	2 4	—	—	—	—	—
Austria			519	496			1 9	—	—	1 9	—	—	2 6	—	—
Belgium		392	396	413	99 2	95 1	—	—	—	–	—	—	—	—	—
Bulgaria		43	35	35	121 2	122 7	—	—	—		–	—	—	—	–
Denmark			186	179			—	—	95	—	—	98	—	—	97
Estonia			183	172			—	100	—	—	—	95	—	—	—
Finland		230	215	197	107 0	116 7	—	–	—	—	—	—	—	—	—
France		3 460	3 465	3 460	99 9	100 0	—	—	—	—	—	—	—	—	—
Greece		1) 29	48	42	–	—	–	—	—			—	—	—	—
Hungary		731	733	715	99 7	102 2	—	—	–	—	—	—	—		–
Italy		962	964	1 004	99 8	95 8	—	—	—	—	—	—	—	—	—
Latvia		314	296	266	106 1	118 2	—	—	—	—	—	—	–		–
Lithuania		445	442	435	100 6	102 3	133	—	—	133	—	—	120	—	—
Luxemburg		41	41	41	100 0	100 9	—	—	3 1	2 9	–	—	2 6	–	
Norway			127	120			—	—	90	102	—	—	—	–	99
Netherlands	m)	275	274	318	100 2	86 3	–	—	–	1)100	—	—	–		–
	n)	61	48	66	127 2	93 5	—	—	—	1)103	—	—			—
Poland			7,150	6 821			—	—	—	3 4	—	—	—	–	—
United Kingdom															
Engl and Wales		455	457	484	99 7	94 0	–	—	–	—	–	-	—	—	—
Scotland		135	133	140	101 5	96 3	–	—	—	—	—	—	—	—	–
North Ireland		125	132	136	95 2	92 0	—		—	–	—	—	—	–	—
Sweden		329	330	328	99 7	100 3	105	—	–	)105	—	–	109	—	—
Switzerland		121	117	114	103 4	105 7	84	—	–	84	—	—	60	—	—
Czechoslovakia	s)	104	104	96	99 5	108 2	—	—	—	–	–	—	—	–	—
	t)	1 810	1,772	1 728	102 1	104 7	2 4	—	—	—	—	—	2 5	—	—
U S S R 3)		16 920	18 724	15 539	90 4	108 9	—	—	—	—	—	—	—	—	—
Canada		501	496	543	100 9	92 2	—	—	90	—	—	92	—	—	77
United States		3 224	3 058	3 513	105 4	91 8	—	—	–	81 3	—	—	—	—	59 2
Algeria	1)	18	17	20	105 3	89 7	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition see general tables and note on page [illegible]
a) Above the average — b) Average c) Below the average m) For consumption — n) For factories — s) Early potatoes – t) Late potatoes 1) At the middle of the month 2) At the middle of the preceding month 3) Figures according to the plan

Hungary On 28 August lifting of early potatoes was reported to be in progress Tubers were large and healthy The main crop assisted by the rains, was growing well

Italy The weather during August was not on the whole unfavourable for the growth of potatoes, whose production at the end of the month was considered good

Lithuania Weather conditions in August were very favourable for the growth of potatoes, particularly during the first fortnight Towards the end of the month, the lack of rain began to have its effect

Luxemburg The persistent drought during August hampered the growth of potatoes

Netherlands At the middle of August potatoes promised a good crop In light soils some varieties of potatoes suffered from drought, but the spread of blight which was beginning to do damage was checked

United Kingdom Reports indicate that the potato crop in England and Wales is vigorous and healthy with promise of an average yield Very little disease is reported For the whole country the total yield is forecast at about 146 centals (240 bushels) per acre

The crop in Scotland was in good condition on 1 September

Production of potatoes

COUNTRIES		British units			American units			% 1937	
		1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
		Thousand centals			Thousand bushels				
Germany	s)	36 143	35 928	56 813	60 237	59 878	94 686	100 6	63 6
Finland		26 923	29 158	24 919	44 871	48 596	41 531	92 3	108 0
Hungary		57 838	54 042	36 914	96 396	90 068	61 522	107 0	156 7
Italy	s)	7 487	5 740	4 222	12 477	9 567	7 037	130 4	177 3
Latvia		37 873	35 527	29 461	63 120	59 210	49 101	106 6	128 6
Luxemburg		3 806	4 411	4 170	6 343	7 352	6 950	86 3	91 3
Netherlands		58 423	55 260	66 669	97 369	92 099	111 113	105 7	87 6
Poland		702 836	755 776	684 604	1 171 370	1 259 601	1 140 984	93 0	102 7
United Kingdom									
England and Wales		66 263	63 034	69 700	110 438	105 056	116 166	105 1	95 1
Scotland		21 280	22 176	21 634	35 467	36 960	36 057	96 0	98 4
Sweden		38 956	40 260	41 253	64 925	67 098	68 753	96 8	94 4
Switzerland		17 970	12 521	16 580	29 949	20 868	27 633	143 5	108 4
Czechoslovakia	s)	7 097	8 995	6 883	11 828	14 991	11 472	78 9	103 1
United States		241 800	197 998	227 441	403 000	329 997	379 068	122 1	106 3

s) Early potatoes

Switzerland The potato crop is almost everywhere satisfactory, tubers are numerous and large Spring potatoes gave good yields and late varieties also promise an excellent crop

Czechoslovakia The wet weather of August was on the whole favourable to the growth of potatoes, which however began to be affected by excessive moisture in several areas towards the end of the month

Palestine Considerable interest is being shown in the storage of potatoes and it is hoped that the experiments being conducted in potato storage will be of value

General review of the crop condition of sugar-beet.

Following the favourable weather conditions in which the crops were growing in the majority of European countries in the middle of August, as indicated in the Crop Report for August, sugar-beet further improved in the second half of the month, with the continuance of mainly favourable conditions. Beneficial rains fell in nearly all parts in the second half of August, bringing an improvement in all countries, particularly those which had suffered from the previous shortage of moisture, such as France and Belgium where a persistence of the drought could have compromised the outcome. In Sweden also, after a period of mainly dry and hot days which lasted for two months, the heavy rains of August brought great relief to the crops and considerably increased the sugar contents of the roots.

Sugar beet.

COUNTRIES	CROP CONDITION †)								
	1st September, 1937			1st August, 1937			1st September, 1936		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	2.4	—	—	2.4	—	—	2.4	—	—
Austria	2.2	—	—	2.2	—	—	2.1	—	—
Denmark	—	100	—	—	—	98	—	100	—
Lithuania	117	—	—	113	—	—	113	—	—
Netherlands	...	...	...	—	—	1) 66	1) 71	—	—
Poland	2) 3.2	—	—	2) 3.1	—	—	2) 3.5	—	—
Sweden	113	—	—	2) 103	—	—	120	—	—
Switzerland	85	—	—	78	—	—	85	—	—
Czechoslovakia	2.2	—	—	—	—	—	2.0	—	—
Canada	—	—	92	—	—	93	—	—	91
United States	...	...	...	85.2	—	—	—	—	80.0

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 665 — 1) At middle of the month. — 2) At middle of the preceding month

Production of sugar beet.

COUNTRIES	BRITISH UNITS			AMERICAN UNITS			% 1937	
	1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	1936 = 100	Average = 100
	Thousand centals			Thousand short tons			%	
Finland	1,653	1,830	1,381	83	91	69	90.4	119.8
Hungary	23,365	24,790	19,624	1,168	1,239	981	94.3	119.1
Netherlands	31,692	36,117	34,492	1,585	1,806	1,725	87.7	91.9
Sweden	40,367	39,674	35,261	2,018	1,984	1,763	101.7	114.5
United States	184,000	180,560	173,720	9,200	9,028	8,686	101.9	105.9

1937-38 Season. — Analysis of sugar-beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1937	1936	1931-1935	1937	1936	1931-1935	1937	1936	1931-1935	1937	1936	1931-1935
	oz.	oz.	oz.	oz.	oz	oz	%	%	%	oz	oz.	oz
3rd. WEEK OF AUGUST.												
Belgium	11.4	14.4	1) 13.9	20.6	30.1	1) 25.7	13.2	13.1	1) 13.2	1.5	1.9	1) 2.0
Poland	11.7	—	2) 9.2	14.1	—	2) 12.7	15.9	—	2) 15.3	1.9	—	2) 1.4
4th. WEEK OF AUGUST.												
Germany	15.3	15.9	12.9	21.0	21.6	15.9	14.8	14.5	15.9	2.2	2.2	2.0
Denmark	13.4	12.5	3) 10.4	16.6	16.8	3) 12.3	13.9	14.2	3) 14.4	1.9	1.8	3) 1.5
France	11.2	12.3	12.7	15.4	24.8	15.6	15.1	14.0	14.7	1.7	1.7	1.8
Netherlands	18.1	19.7	2) 21.4	—	—	—	14.0	15.3	2) 15.7	2.5	3.0	2) 3.4
Czechoslovakia	16.7	15.8	12.7	17.5	17.8	12.9	14.8	15.7	16.5	2.5	2.5	2.1
5th WEEK OF AUGUST.												
Germany	18.3	16.6	2) 13.9	21.7	20.6	2) 16.6	14.5	15.2	2) 16.0	2.6	2.5	2) 2.2
Belgium	15.5	17.8	1) 15.7	22.9	30.8	1) 22.2	13.7	14.1	1) 14.7	2.1	2.5	1) 2.3
Denmark	14.9	13.7	1) 11.6	16.2	15.5	1) 13.3	15.0	15.4	1) 14.2	2.2	2.1	1) 1.7
Finland	14.1	13.4	3) 13.1	16.8	16.7	3) 21.8	—	—	3) 12.5	—	—	3) 1.6
Poland	12.8	11.9	—	13.5	13.6	—	16.1	15.7	—	2.1	2.1	—
Czechoslovakia	18.0	16.9	14.0	17.2	17.2	13.4	15.1	16.7	16.7	2.7	2.8	2.3
1st. WEEK OF SEPTEMBER.												
Germany	18.9	18.3	15.0	20.7	21.3	15.5	15.4	16.2	16.1	2.9	3.0	2.4
Denmark	16.4	14.7	3) 13.2	15.8	15.6	3) 13.1	15.9	16.4	3) 14.8	2.6	2.4	3) 2.0
Finland	15.0	15.0	14.2	17.2	17.7	22.5	—	—	13.5	—	—	1.9
France	12.0	—	15.0	15.7	—	16.5	16.3	—	15.4	2.0	—	2.3
Poland	12.7	13.7	—	12.1	12.4	—	16.5	16.8	—	2.1	2.3	—
United Kingdom:												
England and Wales	10.8	15.0	—	14.7	19.7	—	15.3	15.9	—	1.7	2.4	—
Scotland	11.2	—	—	18.7	—	—	13.9	—	—	1.6	—	—
Czechoslovakia	19.5	18.0	14.7	16.8	16.2	12.2	15.6	16.9	17.1	3.0	3.0	2.5
2nd. WEEK OF SEPTEMBER.												
Germany	20.7	19.0	16.3	21.3	20.8	15.9	15.9	16.6	16.5	3.3	3.2	2.7
Denmark	17.6	15.9	15.1	15.6	14.8	13.8	16.4	16.8	15.1	2.9	2.7	2.3
Finland	16.6	16.0	16.2	17.5	18.8	23.9	—	—	14.4	—	—	2.3
France	13.0	14.7	16.0	14.5	24.6	16.0	17.3	15.6	16.4	2.2	2.3	2.6
Netherlands	21.6	23.2	4) 24.1	—	—	—	15.5	16.3	4) 15.6	3.4	3.8	4) 3.8
United Kingdom:												
England and Wales	11.8	16.6	—	14.3	19.8	—	16.4	15.7	—	2.3	2.6	—
Scotland	12.5	—	—	19.2	—	—	14.9	—	—	1.9	—	—
Czechoslovakia	20.3	18.4	15.5	15.8	14.9	11.7	15.8	17.8	17.5	3.2	3.3	2.7
3rd. WEEK OF SEPTEMBER.												
Germany	22.6	20.0	17.7	20.7	21.7	15.6	16.6	17.1	17.0	3.7	3.4	3.0
Finland	17.8	17.3	17.0	17.5	19.1	24.0	—	—	15.3	—	—	2.6
France	15.4	16.4	17.0	16.0	24.6	16.0	16.8	15.8	17.1	2.6	2.6	2.9

1) Average of three years. — 2) Average of two years. — 3) Average of four years — 4) Year 1935.

Exceptions to the generally favourable situation at the end of August were to be found in the United Kingdom, where the condition of beet, though satisfactory on the average, was very uneven owing to the rainfall of the month which was very unevenly distributed, and in Bulgaria, where, despite the rains of the second half of the month, the crops were still suffering slightly from the previous drought.

In the first half of September, the weather in the beet growing countries of Europe was first rather warm with little rainfall, generally favouring the increase of sugar content. Later it showed much variation from place to place with heavy summer rains in some places and hot and dry days in others. In both cases, the weather was of an extreme character beyond the normal requirements of the beet crops. The weather in most cases was either too dry or too wet. In Germany, it was too wet west of Breslaw, south of Magdeburg and southwest of Hanover, but it was too dry in Brandenberg, west of Halle, in Thuringia, near Halberstadt, in Middle Hanover and in some parts of South Germany. In the other areas of Germany the beet crops made good progress in most cases.

In Poland also the weather was variable but on the whole drier, so that often ripening occurred too rapidly. However, generally speaking, the crop situation was quite good, but a little less good in south Poland. In Czechoslovakia during the first week of September fine, hot and dry weather prevailed, while during the second week there were rains often heavy and accompanied by a considerable drop in temperature; on the whole, these weather conditions were very favourable for the subsequent growth of crops and formation of sugar. In the other European countries also there were storms with heavy rain but of short duration.

In these weather conditions, it is not possible to state that crops have greatly benefited, but on the whole the beet situation does not appear to have deteriorated compared with the end of August. At the middle of September the sugar-content, in countries where analyses are made, was below the average in France and the Netherlands, but above the average in Germany and Denmark. Among the non-European beet producing countries, a notable improvement is reported in the crop condition in the United States.

To make a forecast of the probable production of sugar-beet this year in Europe, excluding the U. S. S. R., for which information is too scanty, one can say, with the usual reserves as regards the last stages of growth, that, remembering the extension of the acreage under sugar-beet in the present season, the not unfavourable weather conditions and the results of the sugar-beet analyses, production this year will hardly be lower than last year.

E. R.

Current information on sugar.

Austria. Sugar-beet was growing well at the end of August.

Belgium The growth of sugar-beet was favoured by the rain that fell during the second half of August

France The beet suffered severely from the drought in August. Save on deep fresh and very heavily manured soils, yellowing occurred and growth slackened and it

Production of cane-sugar.

COUNTRIES	1936-37 1)	1935-36	Average 1930-31 to 1934-35	1936-37 1)	1935-36	Average 1930-31 to 1934-35	% 1936-37 1935-36 = 100	% 1936-37 Average = 100
	Thousand centals			Short tons				
AMERICA								
Antigua	672	476	387	33,600	23,811	19,327	141	174
Argentina	9,576	8,607	7,621	478,796	430,368	381,022	111	126
Barbados	2,853	2,895	2,133	142,648	144,739	106,634	99	134
Brazil	22,046	25,817	19,518	1,100,000	1,290,850	975,879	85	113
Cuba	67,491	57,982	56,306	3,374,490	2,900,000	2 815 256	116	120
Ecuador	408	406	439	20,400	20,300	21,943	101	93
United States (La & H I)	8,740	7 660	4 640	437,000	383,000	232,000	114	188
British Guiana	4,409	4,389	3,061	220,000	219,445	153 060	100	144
Jamaica	2,361	2,049	1,403	118,069	102 000	70,000	115	168
Martinique	1,102	1,101	1,023	60,000	55,040	51,146	100	108
Mexico	6,614	6 790	4,989	300,000	340,000	249,500	97	133
Peru	9,370	8,951	8,819	468,000	448,000	440 940	105	106
Puerto Rico	18,828	18 527	17,471	941,000	926,333	873,522	102	108
Dominican Republic	9 480	10 076	8,719	470,000	503,795	435,928	94	109
St Kitts	762	631	506	38,100	31 555	25 305	121	150
Trinidad	3,594	3,465	2 416	180,000	173,220	120,978	104	149
Venezuela	551	496	456	28,000	24 800	22 824	111	121
Total America	*168 857*	*160 318*	*139,907*	*8,410 103*	*8,017,256*	*6 995 264*	*105*	*121*
ASIA								
Taiwan	21 767	19 877	17 781	1 088 337	993,831	889 061	110	122
India 2)	150,461	132,340	98,202	7,522,963	6,616 893	4,910,030	114	153
Japan 3)	2,723	2 427	2,018	136 100	121,300	100 900	112	135
Java	31 355	13 060	34 550	1,567,742	653 000	1 727 486	240	91
Philippine Is 4)	27 778	24,471	23,579	1,390 000	1 220 000	1,178 937	114	118
Total Asia	*234 084*	*192,175*	*176,130*	*11 705 142*	*9 605 024*	*8,806,414*	*122*	*133*
AFRICA								
Egypt	3,044	2,903	3,220	152,200	145,100	161 020	105	94
Mauritius	6,621	6,184	4,729	331,000	309 000	236,400	107	140
Reunion	1,847	2,007	1,273	92,330	100,366	63,642	92	145
Union of South Africa	8 927	8,346	7,312	446 334	417 318	365,590	107	122
Total Africa	*20,439*	*19,440*	*16,534*	*1,021 864*	*971 784*	*826,652*	*105*	*124*
OCEANIA								
Australia	16,931	14,482	13,251	846 600	724,100	662,549	117	128
Hawaii	20 834	21 451	20 124	1,042 000	1 073 000	1 006,168	97	104
Fiji Is	3 219	2,932	2,369	161,000	147,000	118,447	110	136
Total Oceania	*40,984*	*38,865*	*35,744*	*2,049,600*	*1,944,100*	*1,787,164*	*105*	*115*
TOTALS	**464,364**	**410,798**	**368,315**	**23,186,709**	**20,538,164**	**18,415,494**	**113**	**126**

1) Approximate data — 2) Production of *gur* — 3) Production of sugar (refined and raw) and molasses — 4) Production of sugar and *panocha*

is feared that the roots, at present less developed than ordinarily, will not give an average crop

Hungary At the end of August the sugar beet crop looked well Roots were healthy and well developed in most parts

Italy Weather conditions during August were very variable but on the whole favourable for the growth of sugar beet, and crop condition at the end of the month was estimated as good

Lithuania Weather conditions in August were very favourable for the growth of sugar-beet, particularly during the first fortnight Towards the end of the month, the lack of rain began to have its effect.

United Kingdom The sugar-beet crop has benefited from the warmer conditions and is now reported to be making good growth The present indications are that the yield will be about average

Czechoslovakia The heavy rains of August favoured the growth of sugar-beet which have abundant foliage However, the excessive moisture had reduced the sugar content and encouraged the spread of disease

U S S R Weather conditions in August were favourable for the growth of sugar-beet At the beginning of September the lifting of sugar-beet was in full swing almost everywhere. Production is expected to be plentiful

Barbados Weather in July was drier than usual for the time of year and good rains were needed

Windward Islands It was reported in July that the young cane crop in St Lucia was in satisfactory condition

Leeward Islands During July in Antigua reaping of the cane crop was making good progress It was reported that more rains were needed for the 1938 crop The drought continued in St Kitts and threatened to affect the coming crop

Netherlands Indies In the second half of August the weather was favourable for the old cane-sugar plantations though in some districts the rainfall was insufficient

The canes which were planted early in the young plantations are rather irregular according to district On some farms reserve plantations have been begun

French Indo-China In Tonkin and Annam growth is everywhere normal In Cochin-China planting was begun in July

Egypt The rise of temperature and the adequacy of the irrigation water had a good effect in actively stimulating growth Harvesting of small patches was begun before they were quite ripe, for local consumption in a few localities

Current information on vines.

Germany In all the vine-bearing areas dry weather prevailed during August, favouring the growth of vines A good quality crop of grapes is forecast Quantity however will be slightly below the estimates, owing to a severe attack of cochylis in some parts, despite urgent measures taken to combat it

The crop condition of vines on 1 September 1937 was 2 4, in the system of the country, as on 1 August 1937, compared with 2 1 on 1 September 1936

Austria. Towards the end of August, clusters were well grown The rather rainy weather was not favourable for ripening. On 1 September, the crop condition of vines was 1 9 against 2 0 on 1 August this year and 2 9 on 1 September 1936

Bulgaria: The wet weather of August caused the spread of cryptogamic diseases, doing serious damage to vines It is forecast that the grape crop this year will be about 40 per cent lower than last year

France Vines in all parts are reported to be suffering from a lack of moisture. In the south-east, owing to drought, grapes are maturing before reaching full growth and ripening is taking place in unfavourable conditions. Clusters are generally fairly good but not numerous. Ripening is early everywhere. In the south-east, it is more than 15 days in advance of the normal. Yields are generally expected to be below normal but the 1937 wines will be of good quality and of high alcoholic content.

Greece: According to the most recent estimate the area cultivated to vines (for must) this year is about 391,000 acres against 376,000 in 1936 and 350,000 on the average of the five years ending 1935, percentages 104.0 and 111.5

Hungary. The rather wet conditions of the end of August were unfavourable for growth in the vineyards. Hail damage was reported from many places. Production is expected to be average.

Italy At the end of August the growth of vines was on the whole good. vintage had begun in some provinces with good results as regards quantity, but mediocre in quality Dampness encouraged the spread of mildew and *oidium*

Luxemburg· The crop condition of vines on 1 September was, in the system of the country, 3.0 against 3.6 on 1 August this year and 2.9 on 1 September 1936.

According to the latest estimate, the production of must this year is about 970,000 Imperial (1,160,000 American) gallons, against 1,525,000 (1,831,000) in 1936 and an average of 1,724,000 (2,070,000) for 1931-35, percentages 63.5 and 56.1

Romania Toward the end of August a normal production of good quality wine was expected

Switzerland The growth and good condition of grapes are notable Production expections vary In German Switzerland, the crop is estimated at 360 Imperial (430 American) gallons per acre, against 230 (280) in the autumn of 1936, and an average of 220 (270) for the last 25 years In French Switzerland, particularly Valais, quite a fair crop is expected, but production prospects in other districts are not particularly good In the country as a whole about 62 per cent of the reports show a very good crop

Czechoslovakia According to the most recent estimate, the area cultivated to vines this year is about 64,300 acres against 62,000 in 1936 and 50,800 on the average of the five years ending 1935, percentages, 103.7 and 126.6

Yugoslavia The frequent rains that fell particularly during the second half of August in Dalmatia caused the spread of *oidium* and mildew. Owing to the damage done, the vintage this year in Dalmatia is expected to be worse than last year

Palestine During August weather conditions were beneficial for vines Grape crop is normal. Only slight attacks of mildew are reported. Vintage is about over

Algeria The severe heat in some dry and non-irrigated areas hindered development of the young grapes and formation of glucose Yield of must is below average. With the mediocre development of the clusters in consequence of the frost, strong winds, hail and scirocco, viticultural production will in general be below average, but it is hoped that alcoholic content will be satisfactory

Egypt During August the temperatures were higher than usual, a fact which was very favourable to the vegetative growth of irrigated vineyards Mildew is widespread. Crop condition is excellent.

French Morocco Scirocco has affected vines unfavourably and will reduce the crop. Picking of table grapes is progressing well. The vintage has begun somewhat early in the Rabat area but more scirocco is feared and growers wish to save the existing crop At Meknès, gathering has been in progress since 10 August. Well tended plants have not suffered on account of heat.

Tunisia: Gathering is completed. The crop is below average owing to the drought and scirocco but the sugar content of the must is high. Vinification is proceeding in good conditions. Gathering of table grapes is progressing.

Current information on olives.

Greece: According to non-official sources the crop in Crete promises to be very large. The Ministry of Agriculture states that there will be a large oil production not only in Crete but in the Aegean and Ionian islands and on the mainland despite losses through disease and fly, which have been energetically combated.

Italy: The growth of olives at the end of August was on the whole good: in many provinces however the crop suffered damage from drought and parasites. In some coastal areas flies attacked the fruit.

Palestine During August weather conditions were beneficial for olives The olive crop is greatly in excess of last year. Green olive picking has commenced; olives are strongly developped, and much in advance of last year's

Algeria: The fruit rapidly increased in size and seems to have passed the stage at which it may be damaged by hot winds, but in general an average crop is expected, probably larger than that of last year, which was one of the worst for a long time.

French Morocco In the unirrigated districts shedding increased and only a small part was expected to ripen

Tunisia A rather violent sand storm did damage to olives in August in the Kairuan district In the first three districts of the country, the crop is generally fairly good but good rains are desirable in September to ensure a successful result. In the last two districts, the crop is average, poor or nil Shedding is reported everywhere owing to drought

Current information on flax.

Irish Free State Flax pulled well but the retting was not completed at the end of September

Hungary: Scutching of the flax crop had been completed in the greater part of the country at the end of August The fibre is of good quality but the crop is of mediocre size Threshing of linseed was finished at this time. The seed is well developed.

Lithuania Weather conditions in August were very favourable for the growth of flax particularly during the first fortnight Towards the end of the month the lack of rain was beginning to have its effect

Netherlands: The production of flax was very varied even in small areas. But in the province of Groningen production was abundant and of good quality

U. S. S. R.: The district of Kalinin, which is the main flax-producing district, finished during the first decade of August the lifting of the flax fibre, while in the north and the Jaroslaw area the harvest was not finished even by the end of the month.

Area and production of flax.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/37 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 pounds				
							Fibre.						
Germany 1)	139	109	23	128.1	599.1	785	657	2) 163	78,543	65,679	2) 16,346	119.6	480.5
Austria	7	6	5	123.0	135.6	21	16	14	2,134	1,564	1,432	136.5	149.0
Belgium	70	72	33	96.9	211.3	...	480	230	...	48,029	22,977	...	...
Bulgaria	10	6	2	161.7	407.9	25	14	4	2,477	1,412	445	175.4	556.1
Estonia	77	70	50	110.4	156.1	243	192	143	24,251	19,211	14,313	126.2	169.4
Irish Free State	...	5	2	...	...	...	21	8	...	2,121	831	...	...
Finland 3)	9	11	11	87.4	87.0	...	...	36	...	...	3,571	...	...
France	...	97	45	...	...	...	563	253	...	56,317	25,278	...	...
Hungary	10	9	4) 7	112.5	136.2	38	39	4) 24	3,808	3,868	4) 2,395	98.4	159.0
Italy	5) 25	15	9	—	—	...	71	44	...	7,130	4,361	...	...
Latvia	171	166	113	103.0	150.8	566	409	334	56,571	40,874	33,431	138.4	169.2
Lithuania 3)	218	208	145	105.0	150.7	...	635	472	...	63,482	47,233	...	...
Netherlands	43	33	14	130.6	298.4	302	271	105	30,192	27,137	10,473	111.3	288.3
Poland	...	330	257	...	...	...	821	693	...	82,109	69,297	...	...
Romania	...	71	62	...	...	...	261	159	...	26,090	15,930	...	...
Un. Kingd. North. Ir.	19	25	13	75.2	143.0	...	113	68	...	11,274	6,839	...	...
Czechoslovakia	43	40	23	106.7	189.6	...	210	100	...	21,026	9,962	...	...
Yugoslavia	...	34	29	...	...	...	264	225	...	26,352	22,481	...	...
U. S. S. R. 6)	7) 4,709	5,310	5,689	88.7	82.8	...	...	11,832	.	...	1,183,168	...	...
Egypt	7	6	4	109.1	176.5	44	41	23	4,418	4,128	2,287	107.0	193.1
							Linseed.						
									1,000 bushels of 56 pounds				
Germany	139	109	23	128.1	599.1	847	715	2) 192	1,512	1,276	2) 343	118.5	441.0
Austria	...	3	3	..	...	17	13	12	30	24	22	124.6	135.1
Belgium	70	72	33	96.9	211.3	..	433	175	...	772	313	...	...
Bulgaria	10	6	2	161.7	407.9	52	42	10	93	75	19	124.9	502.9
Estonia	77	70	50	110.4	156.1	..	247	147	...	440	262	...	...
France	...	97	45	.	...	...	...	188	...	...	335	...	...
Hungary	15	15	4) 27	103.4	55.5	95	95	4) 129	169	169	4) 230	100.0	73.3
Italy	5) 25	16	12	—	—	...	84	63	...	149	113	...	...
Latvia	171	166	113	103.0	150.8	517	406	307	924	725	549	127.4	168.4
Lithuania 3)	218	208	145	105.0	150.7	...	809	555	...	1,444	991	...	...
Netherlands	43	33	14	130.6	298.4	...	240	89	...	428	159	...	...
Poland	..	330	257	. .	...	..	1,579	1,157	...	2,820	2,066	..	.
Romania	...	71	62	.	...	...	299	239	. .	534	426	...	...
Czechoslovakia	43	40	23	106.7	189.6	...	161	78	...	288	139	...	...
Jugoslavia	...	34	29	...	...	..	34	19	...	60	34	...	...
U. S. S. R.	8) 5,855	8) 5,798	6,766	101.0	86.5	..	...	16,808	. .	...	30,014	..	..
Canada	241	468	377	51.5	63.9	415	1,005	940	741	1,795	1,769	41.3	44.1
United States	1,081	1,180	1,770	91.6	61.1	4,278	3,308	5,639	7,640	5,908	10,070	129.3	75.9
India	3,594	3,457	3,230	104.0	111.3	9,363	8,691	8,893	16,720	15,520	15,880	107.7	105.3
Egypt	7	6	4	109.1	176.5	46	42	28	82	75	50	109.0	162.2
Eritrea	...	11	4	...	...	...	46	21	...	82	37	...	...
Fr. Morocco	...	43	49	...	...	146	212	223	260	378	399	68.7	65.1
Argentina	9) 6,301	9) 7,438	9) 7,514	84.7	83.9	...	40,786	39,518	...	72,832	70,568	...	...
Uruguay	...	469	350	...	...	...	2,745	1,749	...	4,901	3,124	...	...

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†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) The corresponding figures in dry stalks (flax in raw « Rohstongel ») are as follows: 1937 392,700 th. lb; 1936 328,400 th. lb, average 81,700 th. lb — 2) Average 1933 to 1935. — 3) Flax and hemp — 4) Average 1934 and 1935. — 5) Total area (for fibre and for seed) — 6) "Dolguuetz" Variety. — 7) Area harvested at 25 August representing 93 % of the area fixed by the Plan (5,108,700 acres) — 8) Total area according to the plan — 9) Area sown

At the beginning of September the flax harvest was, however, completed over an area representing more than 95 per cent of the area fixed by the plan. However, only 60 per cent of the flax lifted has been spread out over the fields or put in the water for soaking

Argentina (Telegram of 21 September)· The almost general rain over the greater part of the linseed area improved crop condition and favoured late sowings and germination.

Current information on cotton.

Greece. In the middle of August crop condition was generally very satisfactory save in some places where rains were required. Unit-yields were fairly large.

According to the most recent estimate, area cultivated to cotton this year is about 174,600 acres against 154,100 in 1936 and 73,800 on the average of the five years ending 1935; percentages, 113.3 and 236 6. The corresponding production of ginned cotton is estimated at about 469,100 centals (98,100 bales) against 279,000 (58,400) and 145,900 (30,500), percentages 168 1 and 321.6.

Italy: The picking of cotton was in progress at the end of August with generally good results.

U. S. S. R.· The hot, fine weather of August over Central Asia and Azerbaidzhan favoured the growth of cotton. The opening of the bolls was general almost everywhere by the end of the month. On 10 September 44,358 metric tons of unginned cotton, *i.e.*, 2.1 per cent of the figure in the Plan, had been picked in the irrigated regions, and 2,063 metric tons, or 1 1 per cent., in the unirrigated regions

United States: During the week ending 18 August, the temperatures ranged much above normal in the north-west and about normal in the more eastern sections There was considerable rainfall east of the Mississippi river, but the weather was mostly dry in western parts. Except for too much rain in some eastern localities, the weather east of the Mississippi Valley was mostly favourable, but droughty conditions were intensified in the western parts, where good rains are badly needed

The following week had nearly normal warmth in most sections, while moderate to substantial rainfall was unusually widespread, covering all but limited areas of the western Belt, where conditions continued favourable for cotton The rainfall was helpful in some heretofore dry sections, though there was a noticeable increase in weevil activity in some moister districts.

Weather, during the week ending 1 September was cloudy and wet in the East Belt, with almost daily rains. Dry weather and sunshine were needed generally from Louisiana eastward to the coast and northward to Virginia. In the west it was mostly fair and moderately warm. Conditions in the east were decidedly unfavourable, but in the western section were mainly satisfactory.

During the week ending 7 September, frequent rains and high humidity in the eastern Belt were generally detrimental to the crop which made only poor progress or deteriorated. Similar conditions prevailed in the Lower Mississippi Valley, but in the western Belt some improvement was noticed. In most localities from the Lower Mississippi Valley eastward weather during the week was very favourable for weevil activity.

According to the Cotton Report based on conditions as at 1 September and issued on 8 September, a crop of 16,098,000 bales is expected. This is an increase of 505,000 bales on the preceding report, and compares with 12,399,000 bales in 1936, 10,638,000 bales in 1935, and an average of 14,677,000 bales during the five-year period 1928-1932. The indicated yield per acre of 228.5 lb of lint is the highest on record and compares with 197.9 lb. in 1936 and an average of 169.9 lb. for the ten-year period 1923-1932.

It is estimated that 1.3 per cent. of the acreage in cotton on 1 July has been abandoned, or will be, leaving 33,736,000 acres remaining for harvest. This abandonment is one of the lowest on record. Increased production over that indicated as of 1 August is shown in all major cotton States, except Oklahoma and the Carolinas. Texas shows an increase of 308,000 bales, Mississippi of 110,000 bales, and Arkansas of 71,000 bales, while other States show more moderate increases. These are due in part to the improvement in prospective unit yields and in part to the lessened average abandonment of acreage. Reductions in the Carolinas are mainly due to increased weevil damage, elsewhere losses from weevils have been relatively light. In Oklahoma the crop has been somewhat injured by hot dry winds during August and in some localities damage has been caused by cotton hoppers.

During the week ending 15 September the outstanding feature in the Cotton Belt was the reaction to dry sunshiny conditions wich occurred in the latter part of the week in eastern sections, and which were favourable for checking weevil activity.

Summary of Government cotton reports, by cotton season.

	Provisional estimates for dates indicated 1937/38	Final estimates 1936/37	Final estimates Average 1931/32 to 1935/36	Percent 1937/38 1936/37 = 100	Percent 1937/38 Aver = 100
Report referred to 1 July					
Area in cultivation (acres)	34,192 000	30,960 000	34 398 000	110.4	99.4
Report referred to 1 August					
Area left for harvest (acres)	1) 33 429 000	2) 30,028 000	2) 31 697 000	111.3	105.5
Crop condition (per cent of normal)	81.3	72.3	3) 68.8	—	—
Production 4)	15 593 000	12 399 000	12 684 000	125.8	122.9
Yield of lint per acre in lb	223.3	197.6	3) 179.3	113.0	124.5
Cotton ginned to 1 August 5)	142 983	41,130	85,771	347.7	101.1
Cotton ginned to 16 August 5)	515,000	208,347	294,690	247.6	174.8
Report referred to 1 September					
Area left for harvest (acres)	6) 33,736,000	2) 30,028,000	2) 31,697,000	112.3	106.4
Crop condition (per cent of normal)	75.0	59.1	3) 59.5	—	—
Production 4)	16,098,000	12,399,000	12,684,000	129.8	126.9
Yield of lint per acre, in lb	228.5	197.6	3) 179.3	115.6	127.4
Cotton ginned to 1 September 5)	1,871,000	1 375,459	1,072,005	136.0	174.4
Cotton ginned to 16 September 5)	4,267,000	3,709,065	2 657,216	115.0	160.6

1) Area in cultivation on 1 July less the ten year (1927 36) average abandonment 2.3 percent. — 2) Area actually harvested. — 3) Ten year (1926 35) average. — 4) In bales of 478 lb net weight and exclusive of linters. — 5) In running bales, counting round bales as half bales and exclusive of linters. — 6) Area in cultivation on 1 July less 1.3 percent of abandonment.

India. Crops were generally in good condition in the United Provinces at the end of the first decade of September. Rainfall was general and in some parts excessive.

Good rains fell in Bombay and the crop outlook at the middle of September was satisfactory.

Madras experienced moderate to heavy rainfall in the first days of September. Crops were in fair condition

The condition of the Punjab cotton crop at the beginning of September was 83 per cent of the normal as compared with 97 per cent. at the same time last year

Algeria Growth was at first hindered by the cold spring but subsequently developed, thanks to the dry summer The crop was then severely attacked by bollworm (*Earias*), which caused damage that cannot yet be estimated.

Egypt· During the second half of August weather was favourable to cotton. The plants appear actually in good state as the formation of bolls, their ripening and opening are in progress

Picking was in active progress in the early-sown areas of the southern region of the Delta, condition being there considered identical to that of last year It is more advanced in the irrigated lands of Upper Egypt and is also general in the basin lands Crop condition is good.

Nyasaland It was reported in July that the cotton crop had suffered from dry weather in its earlier stages owing to the lateness of planting

Uganda The total acreage planted to the end of July was 1,108,000 acres as compared with 884,000 to the corresponding date of last year Percentage 125 3. During July, crop condition was satisfactory in the Eastern Province although dry weather retarded growth in Buloga, Bugwere and Budama districts, some damage by lygus was reported especially in Bugwere Crop condition in the Buganda Province was also satisfactory except in Masaka district where unusually dry weather had retarded growth, no serious damage from disease and pests was reported In the Northern Province the weather was favourable and crop condition was normal except in some parts of the Lango district where dry weather affected germination while in other parts rain was rather excessive and May and June plantings suffered to a more than usual degree from insect attack In the Western Province, although the acreage planted to the end of July exceeded the plantings for the same period last year, it was expected that the bulk of the crop would be planted during August as weather conditions had so far not been very favourable for planting It may be said, however, that prospects for the cotton crop in Uganda as a whole were good.

Tanganyika. Dry weather was reported in July from all districts, and it was cooler in the west. Lake Province cotton was affected by adverse weather, but crop estimates remained unchanged

Current information on hemp.

Austria According to the most recent estimate, production of hemp (fibre) this year is about 1,800 centals against 1,800 in 1936 and 2,900 on the average of the five years ending 1935; percentages 95 7 and 61 6. The corresponding figures for the production of hempseed are the following 1,300 centals, 1,300 and 1,000 (104,2 per cent., 126.8 per cent.).

Hungary· Hemp was being scutched at the end of August. The fibre is satisfactory in length and quality Seed production is average

Poland. Crop condition of the hemp on 15 August was 2,7 as on 15 July against 3,4 on 15 August 1936.

Czechoslovakia: According to the most recent estimate, the area cultivated to hemp this year is about 17,800 acres against 18,400 in 1936 and 19,000 on the average of the five years ending 1935, percentages 96.9 and 93.6.

U. S. S. R.: The wet weather of August hampered the work of harvesting the hemp. On 15 August the area on which the harvest was completed was 370,000 acres, or only 31 per cent. of the plan, against 47 per cent. of the plan completed at the same time last year.

Current information on hops.

Belgium: Hop-picking was begun under good conditions. The damage due to peronospora, to the red spider and to green-fly is very slight wherever treatment against these pests was well applied.

France: The crop retained the good appearance of last month.

United Kingdom: The crop has greatly benefited through the favourable weather experienced during August. A month ago, it was reported that dull weather and cool nights in July had retarded development and attacks of aphis and downy mildew were then prevalent in most areas, particularly in Kent. Powdering and spraying and the beneficial effect of the warmer weather have, however, substantially improved the condition of the crop. The yield is expected to be rather below that of last year.

Czechoslovakia: At the beginning of September the picking of hops was almost finished. A lower production is forecast mainly owing to the reduction of the area, but the crop is of very good quality.

According to the most recent estimate, the area cultivated to hops this year is about 28,500 acres against 29,100 in 1936 and 28,000 on the average of the five years ending 1935, percentages, 98.1 and 102.0.

Yugoslavia: Weather conditions in August were not very favourable for the growth of hops particularly in the areas of Batchka and Srem.

Current information on tobacco.

Belgium: Tobacco has done well and will yield a good production.

France: The crop maintained the good appearance of last month.

Greece: According to the most recent estimate, area cultivated to tobacco this year was about 226,300 acres against 273,500 in 1936 and 187,300 on the average of the five years ending 1935, percentages, 82.7 and 120.8. The corresponding production is estimated at about 1,474,000 centals against 1,607,000 and 949,000; percentages, 91.7 and 155.4.

Hungary: At the end of August, tobacco leaves were well grown and healthy. Hail and storms caused some damage.

According to the most recent estimate, area cultivated to tobacco this year is about 35,100 acres against 36,500 in 1936 and 49,200 on the average of the five years ending 1935; percentages, 96.1 and 71.3. The corresponding production is estimated at about 451,300 centals against 503,300 and 614,700; percentages 89.7 and 73.4.

Italy· According to the most recent estimate, area cultivated to tobacco this year is about 79,600 acres against 79,800 in 1936 and 91,700 on the average of the five years ending 1935; percentages, 99.8 and 86.8. The corresponding production is estimated at about 948,000 centals against 967,800 and 1,009,100; percentages, 97.9 and 93.9.

Czechoslovakia· Weather conditions in August were on the whole favourable to the growth of tobacco.

Canada According to the most recent estimate, the area cultivated to tobacco this year was about 70,000 acres against 55,000 in 1936 and 48,800 on the average of the five years ending 1935; percentages, 127.4 and 143.5. The corresponding production is estimated at about 56,000,000 lb. against 46,084,000 lb. and 48,701,000 lb.; percentages, 121.5 and 115.0.

Japan· According to the most recent, estimate production of tobacco this year is about 137,150,000 pounds against 142,353,000 in 1936 and 145,813,000 on the average of the five years ending 1935; percentages, 96.3 and 94.1.

Palestine Picking has commenced and good yields are the rule. A very considerable surplus over local requirements is expected

Algeria. Owing to the high temperatures, tobacco drying was too rapid. Picking is drawing to an end. Yields are not fully satisfactory but quality is good and drying was done in good conditions. The last plantings yielded leaves which were too short to realize an average production.

Current information on other products.

Cacao.

Windward Islands. It was reported in July that the outlook for the coming cacao crop in St. Lucia was poor.

Gold Coast and British Togoland· The crop situation in July was as follows.

MINOR CROP 1937. -- Crop estimate: unchanged.

Ashanti. — The quality of the crop was reported to be poor. It was estimated that about 1,010,000 lb. had been marketed to the end of the month and that 110,000 lb were in farmers' hands. The remainder of the crop was expected to be harvested during August and probably marketed with the early major crop in September. Conditions had been unfavourable for drying.

Western Province. — Quantity marketed: about 450,000 lb., a very small quantity remaining in farmers' hands. Quality fair. Conditions· unfavourable for drying owing to rains and lack of sun. It was expected that the remainder of the crop would probably be harvested during August.

Central Province. — Quantity marketed· 6,830,000 lb. in farmers' hands: 1,040,000 lb. Quality: fair, under-fermentation and slate being the predominant defects. Conditions: more favourable for drying than in the areas concerned above.

Reports stated that harvesting and marketing slackened during the month and that some farmers were holding their produce for inclusion with the early major crop in September.

Eastern Province. — Quantity marketed: 16,800,000 lb.; in farmers' hands: about 1,460,000 lb. Quality fair. Conditions for drying: moderate. Marketing slowed down during the month and it was expected that the latter part of the minor crop would merge with the early major.

Trans-Volta. — Quantity marketed: about 540,000 lb.; in farmers' hands: 270,000 lb. Quality. average. Conditions for drying moderate. In the Jasikan-Ahamansu area it was expected that the minor crop would merge with the early major.

MAJOR CROP 1937-38. — The usual routine work of cleaning was reported to be taking place in farms, in preparation for the major crop. Indications from all sources were that the coming major crop season would be a good one. Conditions throughout the cacao areas, with one exception, were reported to have been favourable for flowering, pod-setting, and growth

Movement — The total maritime exports from 1 October, 1936, to 31 July 1937, were 611.5 million lb. Exports over the Eastern Frontier, for the same period, were 12.7 million lb., a grand total of 624.2 million lb This total constitutes a record for the ten months of the crop year period. Movement in July was as follows

	July 1937	July 1936
	(million pounds)	
Railway off-loadings Takoradi	1.0	3.2
Exports		
Takoradi	3.5	8.3
Accra	7.0	16.1
Other ports	4.6	6.9
All ports	*15.1*	*31.3*
Eastern Frontier	0.0	—
Total exports	*15.1*	*31.3*

Tea.

India In North India weather conditions were seasonable during the month of July although the rainfall was in deficit. The prospects of the crop were fairly good. In South India, the crop was adversely affected by the persistent wet weather and prospects were only moderate

In North India, statistics to the end of July recorded a decrease of 7,408,400 lb. as compared with the outturn to the same date last year. In South India, the outturn was 10.2 per cent. ahead of that to the same date last year.

Japan Weather conditions were favourable for tea and crop condition was good

Coffee.

Guadeloupe: The total area under coffee is estimated at 16,000 acres this season and production at 1,650,000 lb.

Haiti: During August in the main producing areas the weather was wet. The crop condition of coffee at the beginning of September was considered good.

Dominican Republic: Weather conditions in July were good. The production of coffee for the present season is estimated at 49,097,000 lb. against 53,749,000 lb last season The area under cultivation was 144,000 acres.

British Malaya: At the end of 1936 the total area under coffee in Malaya was estimated to be 18,600 acres. On the assumption that three-quarters of the area is in production, and that the average production of prepared coffee is 530 lb. per acre the total crop would be about 7,840,000 lb..

French Equatorial Africa: Weather conditions in August were on the whole normal and the crop condition of coffee at the beginning of September was average. According to the latest estimate, the production of coffee in the present season is 4,000,000 lb. against 3,300,000 in the 1936-37 season The productive area is now estimated at 22,000 acres.

Angola During August the weather was on the whole wet The crop condition on 1 July was considered average. The area in production in the present season is 49,000 acres as against 48,000 last season.

Belgian Congo· According to the latest estimate, the production of coffee (European crop) in 1936-37 was 39,840,000 lb. against 31,550,000 in 1935-36 The acreage harvested was estimated at 92,700 acres against 79,300 last season

Kenya. Weather in July was generally cool and showery with heavier rain on the highlands Coffee prospects were satisfactory.

Weather conditions during August were normal and the crop condition of coffee at the beginning of September was considered good. The production of coffee in 1937-38 is estimated at 53,980,000 lb. against 36,240,000 in the 1936-37 season The producing area of the present season is 96,000 acres against 93,000 in the previous season

Madagascar: Weather conditions were average in July Crop condition during August was also normal and would have been better but for a rather considerable shedding of flowers. The productive area this year is 188,000 acres against 178,000 last year Production is estimated at 61,700,000 lb. against 46,300,000 lb last year

Groundnuts.

Java and Madura· The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details of the groundnut area

	1937 acres	1936 acres
Area harvested in July	64,700	64,000
Area harvested from 1 January to 31 July. . .	319,300	306,900
Area of standing crop at the end of July . . .	179,900	173,000

Egypt: The formation of pods is getting on in the early and general cultivations of groundnuts. Crop condition is satisfactory.

Nigeria: According to the most recent estimate, production of groundnuts during the season 1936-37 is about 7,060,000 centals against 3,700,000 in 1935-36 and 4,260,000 on the average of the five seasons ending 1934-35; percentages 190.9 and 165,8.

Colza and sesame.

Austria: According to the most recent estimate, area cultivated to colza this year about 3,700 acres against 4,300 in 1936 and 4,800 on the average of the five years ending 1935; percentages, 85.7 and 77.0. The corresponding production is estimated at about 42,500 centals against 35,500 and 48,400; percentages, 119.9 and 87.9.

Bulgaria: According to the most recent estimate, the area cultivated to sesame this year is about 13,000 acres against 13,500 in 1936 and 21,800 on the average of the five years ending 1935, percentages, 95.8 and 59.6.

Greece: According to the most recent estimate, the area cultivated to sesame this year is about 94,700 acres against 79,800 in 1936 and 87,200 on the average of the five years ending 1935; percentages, 118.6 and 108.5.

Hungary: Sowing of winter colza was being done at the end of August. The first sowings were growing well and evenly at this time.

Italy: According to the most recent estimate, area cultivated to colza this year is about 3,000 acres against 3,600 in 1936, percentage 82.4. The corresponding production is estimated at about 33,400 centals (66,800 bushels) against 35,300 (70,500), percentage 94.7.

Netherlands: The production of colza has not been satisfactory. Its crop condition, in the system of the country, was 59 on 16 August against 66 on 19 July 1937 and 65 on 17 August 1936.

According to the most recent estimate production of colza this year is about 110,000 centals (220,000 bushels) against 101,000 (202,000) in 1936 and 82,000 (164,000) on the average of the five years ending 1935, percentages 108,8 and 134.1.

Romania: Toward 10 September sowing of winter colza was completed in favourable conditions.

Czechoslovakia: According to the most recent estimate, area cultivated to colza this year is about 19,400 acres against 11,600 in 1936 and 4,700 on the average of the five years ending 1935, percentages, 167.8 and 409.6. The corresponding production is estimated at about 256,600 centals (513,200 bushels) against 163,500 (326,900) and 47,300 (94,600), percentages 157.0 and 542.7.

Palestine: In general the sesame crop is good. The harvest has commenced. Yields are expected to be much in excess of those of last year for the country as a whole.

Jute.

India: According to the final estimate, the area cultivated to jute this year was about 2,861,000 acres against 2,886,000 acres in 1936-37 and an average of 2,275,000 acres in the five years ending 1935-36, percentages, 99.1 and 125.8. The corresponding production is estimated at about 34,472,000 centals against 38,544,000 centals and 29,152,000 centals; percentages, 89.4 and 118.2.

Current information on fodder crops.

Germany: At the beginning of September fodder plants were well grown.

Austria: The somewhat rainy weather in August was very favourable to all fodder crops. Production of temporary and permanent meadows was abundant but haymaking was hindered by the rains in the second half of August so that the quality leaves much to be desired.

The following are the data available on production of the principal fodder crops.

			1937	1936
Red clover	(two cuts)	(000 centals)	14,639	17,858
		(000 sh tons)	732	893
Alfalfa	(two cuts)	(000 centals)	4,189	5,732
		(000 sh tons)	209	287
Clover mixtures		(000 centals)	6,438	6,614
		(000 sh tons)	322	331
Permanent meadows	(first cut)	(000 centals)	49,736	64,375
		(000 sh tons)	2,487	3,219

Belgium: Meadows had suffered severely from drought at the beginning of August. Young clover was mostly in good condition. Turnips for feed, having been sown in dry weather, sprouted slowly and unevenly.

Bulgaria: The rains in August were very favourable and crop condition at the beginning of September was very good.

Finland: According to the most recent estimate, production of fodder roots and tubers in general this year is about 12,216,000 centals (611,000 short tons) against 13,737,000 (687,000) in 1936 and 14,426,000 (721,000) on the average of the five years ending 1935, percentages, 88.9 and 84.7

France: Except in well watered fields, growth of fodder crops is held up but as the first cuts were satisfactory in quantity and quality and as temporary meadows have generally yielded excellent second cuts, no fodder scarcity is feared in the coming winter. There will be, however, little tuber and root feed. Turnips and rape grown on stubble in the centre, south-west and west will sprout only if rains come.

Hungary: Mangels were in good condition at the end of August. The roots were healthy and of fair size on the whole. An average crop is anticipated. The third clover cut and the fourth alfalfa cut promise good yields. Maize for green fodder, rye-grass and moha are yielding well. Fodder crops grown on stubble are growing well. The aftermath on permanent meadows is average Growth on pastures was vigorous after the rains.

Italy: The production of meadows was abundant and sufficient for the feeding of stock: the results of fodder crops however are poor, particularly in the islands, where drought did considerable harm.

Latvia: As a result of the drought at the beginning of the summer and the frequent rains at harvest time, the first clover crop gave yields below the average both in quantity and quality. The second cutting, however, showed an outturn above the average.

Latvia (contd.) *Production of the principal fodder crops.*

	Centals (thousands)			Short tons (thousands)			% 1937	
	1937	1936	Aver. 1931-35	1937	1936	Aver. 1931-35	1936 = 100	Aver. = 100
Hay from permanent meadows	35,780	39,307	39,885	1,789	1,965	1,994	91.0	89.7
Clover	26,347	34,912	32,354	1,317	1,746	1,618	75.5	81.4

The condition of fodder crops.

Crops and countries	Crop condition †)								
	1 September 1937			1 August 1937			1 September 1936		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
Clover.									
Germany	2.9	—	—	—	—	3.2	2.4	—	—
Austria 1)	2.2	—	—	2.4	—	—	1.9	—	—
Netherlands 1)	—	—	2) 62	2) 67	—	—	2) 71	—	—
Poland	—	—	—	—	—	2) 2.1	2) 3.2	—	—
Alfalfa.									
Germany	2.8	—	—	2.7	—	—	2.2	—	—
Austria	2.2	—	—	2.1	—	—	1.8	—	—
Netherlands	2) 68	—	—	2) 66	—	—	—	—	—
Mangels:									
Germany	2.6	—	—	2.5	—	—	2.4	—	—
Austria	2.2	—	—	2.2	—	—	2.1	—	—
Denmark	—	—	97	—	—	96	—	—	99
Norway 3)	—	—	91	—	—	—	—	—	—
Netherlands	—	—	2) 65	2) 70	—	—	2) 71	—	—
Switzerland	80	—	—	78	—	—	77	—	—
Canada 3)	—	—	96	—	—	97	—	—	79
Temporary Meadows.									
Austria 4)	2.0	—	—	2.3	—	—	1.8	—	—
Norway	112	—	—	—	—	—	—	—	—
Sweden	118	—	—	2) 118	—	—	105	—	—
Switzerland	78	—	—	78	—	—	87	—	—
Permanent Meadows:									
Germany									
irrigated meadows	2.6	—	—	2.5	—	—	2.2	—	—
other meadows	—	3.0	—	2.9	—	—	2.4	—	—
Austria	2.4	—	—	2.3	—	—	1.8	—	—
Norway	107	—	—	—	—	—	—	—	—
Poland:									
ordinary meadows	—	—	2) 2.2	—	—	2) 2.1	—	—	2) 2.7
low meadows	—	—	2) 2.8	—	—	2) 2.8	—	2) 3.0	—
meadows improved	—	—	2) 2.9	—	—	2) 2.8	2) 3.5	—	—
Sweden	107	—	—	2) 107	—	—	103	—	—
Switzerland	79	—	—	74	—	—	86	—	—
Pastures:									
Germany	—	3.0	—	—	—	3.1	2.5	—	—
Austria	2.7	—	—	2.2	—	—	2.0	—	—
Denmark	—	—	92	—	—	94	—	—	93
Netherlands	2) 59	—	—	2) 63	—	—	2) 79	—	—
Poland	—	—	2) 2.2	—	—	2) 2.0	—	—	2) 2.6
Switzerland	76	—	—	79	—	—	74	—	—
Canada	—	—	90	—	—	91	—	—	79

a) Above the average. — *b)* Average — *c)* Below the average. — *d)* Excellent — *e)* Good — *f)* Average. *g)* Poor. — †) See explanation of the various systems on page 665. — 1) Red clover — 2) At the middle of the preceding month. — 3) Turnips, etc. — 4) Kleegrass.

Netherlands: The crop condition of mangels varied from good to fairly good at the middle of August: clover was in similar condition. The condition of alfalfa was good. Owing to the lack of rainfall, the feed value of pastures has decreased; in the higher districts the meadows were bare and it was necessary to feed the stock by hand. In the lower districts pasturage was normal.

United Kingdom. The hay harvest in England and Wales was completed under favourable conditions and quality and condition are good. Yields are above the average.

Turnips, swedes and mangels generally appear healthy. Average crops of mangels are expected, with turnips and swedes rather more backward. Rain would be of benefit.

Turnips in Scotland are in average condition but mangels are rather below average.

Romania. In consequence of the rains at the end of August growth of pastures greatly improved.

Sweden. The following are the latest estimates of fodder production:

	Centals (thousands)			Short tons (thousands)			% 1937	
	1937	1936	Aver 1931-35	1937	1936	Aver 1931-35	1936 = 100	Aver = 100
Hay of rotation meadow	124,870	105,624	106,549	6,243	5,281	5,327	118.2	117.2
Hay of permanent meadow	13,162	12,319	11,939	658	616	597	106.8	110,2
Roots and tubers for fodder in general	61,465	60,703	70,973	3,073	3,035	3,549	101.3	86,6

Switzerland. The growth of grass was at times affected by drought, and the yields of second crops varied considerably between districts and soils. However, after rains came, the condition of meadows again improved. In many places, thanks to the fine weather of these last weeks, it has been possible to reap a third crop. The growth of mangels and carrots for feed has been assisted by rain and they show a slight improvement compared with the previous month.

Czechoslovakia: The growth of fodder plants, particularly alfalfa, which is being cut for the third time, of clover and meadows varied considerably between districts according to the quantity of moisture during the second half of August. On the whole, rains encouraged the growth of these crops, though they hindered and even damaged the hay harvests.

Canada: According to the most recent estimate, the area of hay and clover this year is about 9,072,000 acres against 8,787,000 acres in 1936 and an average of 8,876,000 acres in the five years ending 1935, percentages, 103.2 and 102.2. The corresponding production is estimated at about 260,940,000 centals (13,047,000 short tons) against 276,060,000 centals (13,803,000 short tons) and 259,102,000 centals (12,955,000 short tons); percentages, 94.5 and 100.7.

The condition of fodder maize on 31 August was 100 against 93 on 31 July and 70 on 31 August 1936.

LIVESTOCK AND DERIVATIVES

Sheeps numbers in Germany.

The following table contains the results of an enumeration of sheep conducted in Germany on 3 June 1937 compared with the corresponding figures for the last two years

Classification	3 June 1937	4 June 1936	4 June 1935 1)
Sheep under 1 year	*2,115,366*	*2,015,360*	*1,787,189*
Males	...	927,181	...
Females	...	1,088,179	...
Sheep 1 year old and over	*3,248,403*	*2,981,161*	*2,753,089*
Rams	515,155	60,436	...
Wethers		377,994	...
Lambing ewes and other	2,733,248	2,542,731	...
TOTAL	*5,363,769*	*4,996,521*	*4,540,278*

1) Excluding the Saar Territory

Livestock in Belgium.

In the following table are given the numbers of livestock in Belgium on 31 December 1936 compared with the figures of preceding years and the prewar period:

YEAR	Horses 1)			Cattle				Pigs			
	under 3 years	over 3 years	Total	under 2 years	dairy cows	other cattle over 2 years	Total	under 6 months	over 6 months	of which store pigs (fattening)	Total
1936	75,518	187,586	263,104	589,078	983,983	79,738	1,782,840	506 987	547,486	704,805	1,054,475
1935	91,112	140,294	231,406	763,064	970,225	104,205	1,837,494	712,139	572,326	428,261	1,284,465
1934	91,199	140,600	231,799	762,334	963,030	114,317	1,839,681	688,684	569,174	422,485	1,257,858
1933	91,442	141,847	233,289	760,609	946,515	105,483	1,812,607	729,168	623,358	461,345	1,352,526
1932	95,079	142,933	238,012	745,752	941,814	96,880	1,784,446	679,424	565,230	421 322	1,244,654
1931	96,663	145,326	241,989	738,740	930,930	97,866	1,767,536	672,902	562,312	420,114	1,235,214
1930	98,184	147,787	245,971	732,437	925,556	100,661	1,758,654	680,867	568,754	424,066	1,249,621
1929	99,564	149,450	249,014	727,208	911,720	99,420	1,738,348	675,374	561,628	421,252	1,237,002
1928	103,392	149,922	253,314	743,651	907,730	99,160	1,750,541	621,362	517,769	385,020	1,139,131
1927	101,978	154,847	256,465	735,462	901,902	101,450	1,738,814	609,824	514,419	381,347	1,124,243
1913	95,472	171,688	267,160	779,950	936,800	132,734	1,849,484	746,674	665,619	—	1,412,293

1) Horses used in agriculture

Cattle and pig population in Denmark.

Cattle.

(Thousands).

CLASSIFICATION	17 July 1937	2 January 1937	18 July 1936	28 Decembre 1935	13 July 1935	16 July 1934	15 July 1933	15 July 1932
Cattle	*3.079*	*3.072*	*3.107*	*3.063*	*3.072*	*3.053*	*3.134*	3.237
Calves under 1 year	761	798	785	796	782	712	685	767
Heifers 1 year and over.	600	538	580	494	529	518	542	582
Cows which have calved, 2 years and over	1.574	1.601	1.610	1.658	1.647	1.712	1.770	1.739
Steers 1 year and over.	81	70	68	51	51	47	59	62
Bull 1 year and over	63	65	64	64	63	64	78	87

Pigs.

(Thousands).

CLASSIFICATION	1937							1936				
	28 Aug.	17 July	19 June	8 May	27 March	13 Febr.	2 Jan.	21 Nov.	10 Oct.	29 Aug	18 July	13 June
Boars for breeding.	20	19	21	21	21	21	22	22	23	23	23	24
Sows in farrow for first time	49	66	70	74	68	56	53	52	58	77	108	125
Other sows in farrow	148	157	164	159	162	172	188	185	182	178	185	189
Sows in milk	91	87	82	89	92	84	86	90	108	122	108	99
Sows not yet covered (and not for slaughter)	29	25	26	26	26	29	28	39	42	39	30	27
Sows for slaughter.	14	12	10	11	12	18	19	26	28	22	16	15
Total of sows	*331*	*347*	*352*	*359*	*360*	*359*	*374*	*392*	*418*	*438*	*447*	*455*
Sucking pigs not weaned	794	766	707	761	751	669	691	730	892	1,006	888	810
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg.	811	763	775	752	734	774	874	1,010	1,024	947	851	826
Pigs of 35 and under 60 kg.	638	713	656	625	657	682	739	811	756	696	754	700
Fat pigs of 60 kg. and over	573	475	506	519	536	519	523	551	556	608	533	559
Total pigs	*3,167*	*3.083*	*3,017*	*3.037*	*3,059*	*3.024*	*3,223*	*3,516*	*3,669*	*3,718*	*3,496*	*3,374*

Livestock in the Netherlands (According to the Enumeration of 10-22 May 1937).

Numbers of cattle (1).

Classification	May 1937	May 1936	20 May-1 June 1935	14 May-1 June 1934	June 1933	June 1932	June 1930
Cattle	*2,626,717*	*2,569,797*	*2,639,477*	*2,829,684*	*2,877,230*	—	*2,366,066*
Bulls over 1 year	31,274	33,745	37,668	49,289	39,832	—	26,453
Heifers over 1 year in calf and not in calf	462,326	482,013	532,857	673,275	611,659	—	419.417
Young bulls under 1 year	84,283	58,880	64,628	75,920	95,651	—	502,033
Heifers under 1 year	430,141	389,086	399,151	459,197	516,391	—	
Milk cows and cows that have put down their:							
1st. calf	280 295	289,350	298,882	324,632	335,348	1,338,446	1,298,736
2nd. calf	272,247	282,767	287,349	286,176	283,594		
3rd. calf	283,438	289,127	278,661	263,778	258,492		
more than three calves	639,327	593,623	569.802	559,369	574,877		
Calves for fattening	26,845	33,829	42,258	45,865	50,909	—	38,548
Other cattle for fattening	116 541	117,377	128,221	92,183	110,477	—	80,879

1) The figures of the enumerations of 1932 to 1937 are not strictly comparable with that of the Census of 1930, the figures being collected on different bases. The enumerations of 1933 to 1937 were undertaken by the Netherlands Central Livestock Office, that of 1932 by the Central Office for Livestock Products during the Crisis while the Censuse was conducted by the Department of Agriculture.

Numbers of pigs.

Classification	May 1937	May 1936	February 1936	November 1935	August 1935	May 1935	February 1935	May 1934
Pigs	*1,406,366*	*1,678,984*	*1,509,377*	*1,669,060*	*1,629,377*	*1,523,751*	*1,389,460*	*2,081,752*
Boars for reproduction	4,532	5,543	5,273	5,270	5,575	5,348	5,360	6,642
Sows for reproduction	143 700	173,581	157,707	145,965	152,555	151,998	145,284	154,477
Sows for fattening	—	—	16,542	32,157	—	—	—	—
Sucking pigs under 6 weeks	312,812	400,817	319,723	331,357	397,483	318,697	269,549	330,733
Young pigs under 60 kg.	573,624	648,918	480,713	573,930	544,000	658,140	445,393	854,605
Pigs of 60 to 100 kg.	190,436	239,841	311,543	271,804	335,235	199,240	308,201	390,931
Pigs over 100 kg.	181,262	210,284	217,876	308,577	194,529	190.328	215,673	344,364

Numbers of horses (1).

Classification	May 1937	May 1936	May 1935	May 1934	May-June 1930
Horses	*299,989*	*295,143*	*287,970*	*269,298*	*299,152*
Over 3 years	232,678	234,254	231,369	220 648	253,639
Under 3 years:					
born during the year	22,767	20,166	21,002	15,834	17,081
others	44,544	40.723	35,599	32,816	28,432

1) The figures of the enumerations of 1934 to 1937 are not strictly comparable with those of the Census of 1930 as the numbers were taken on a different basis.

Numbers of sheep (1).

Classification	May 1937	May 1936	May 1935	May 1934	May-June 1930
Sheep	*608,333*	*654,530*	*680,174*	*641,894*	*484,987*
Lambs	326,589	358 415	362,744	330,285	260,787
Ewes for reproduction	4,007	4,386	6.144	5,778	224,200
Rams for reproduction	220,541	236,937	244 593	237,014	
Other sheep	57,196	54,792	66,693	68,817	

1) The figures of the enumerations of 1934 to 1937 are not strictly comparable with those of the Census of 1930 as the numbers were taken on a different basis

Poultry.

Classification	May 1937	May June 1936	May June 1935	May June 1934
Fowls	*27,703 594*	*27,788,396*	*28,482,480*	*34,539,803*
Chickens born during the year	14,030,507	13,816 188	13,018,528	17,422,211
Other fowls	13,673,087	13,972,208	15 463,952	17 117 592
Ducks	*814,559*	*774,437*	*861 234*	*954 453*
Ducklings born during the year	300 164	286 103	309,450	376,686
Other ducks	514,395	488,334	551,784	577 767

Livestock and poultry in Yugoslavia. 1)

CLASSIFICATION	End of December		
	1936	1935	1934
Horses	*1,216,085*	*1,200,831*	*1,205,865*
Colts and fillies under 3 years	196,347	189,719	192,154
Stallions	17,947	17,045	18,365
Geldings	496,309	490,294	489,873
Mares	505,482	503,773	505,473
Asses	*123,461*	*120,925*	*120,034*
Mules	*17,987*	*18,430*	*17,678*
Cattle	*4,073,729*	*3,982,359*	*3,989,941*
Calves under 1 year	564,398	555,027	559,060
Cattle 1 year old and above	614,457	598,915	598,783
Bulls	63,543	63,660	65,311
Oxen	924,099	901,133	919,473
Cows and heifers	1,907,232	1,863,624	1,847 314
Buffaloes	*37,217*	*36,946*	*38 929*
Sheep	*9,568,338*	*9,211,101*	*8,867,685*
Lambs under 1 year	1,773,987	1,690,502	1,633,206
Rams for service	393,659	381,385	379,399
Other rams	245,787	(2)	(2)
Breeding ewes	6,580,922	6,380,770	6,085,049
Other ewes	573,983	3) 758,444	3) 770,031
Goats	*1 905,993*	*1,895,905*	*1,881,126*
Kids under 1 year	413,211	395,223	396,348
Goats	1,492,782	1,500,682	1,484,778
Pigs	*3,126,241*	*2,931,900*	*2 791,592*
Young pigs under 1 year	1,483,330	1,409,278	1,348,421
Boars	55,193	53,745	53 141
Brood sows	756,618	726 965	696,213
Other pigs	831,100	741,912	693,817
Poultry	*21,505,246*	*20,768,672*	*20,817,099*
Fowls	18 355,777	17,761,172	17,857,933
Geeses	1,266,394	1,186,389	1,132,507
Ducks	1,061,563	972,852	982,691
Turkeys	821,512	848,259	843,968

1) On farms only — 2) See note 3 — 3) Including other rams

Livestock in the Unites States.

The Bureau of Agricultural Economics reports that the number of cattle on feed for market in the maize belt States on 1 August 1937 was about 29 per cent. smaller than on the same date last year. On 1 April 1937 the decrease from a year earlier had been estimated as 33 per cent. and on 1 January as 23 per cent.

The decrease was considerably larger in the western than the eastern maize belt; moreover in the western belt numbers were already relatively small on 1 August 1936, whereas in the eastern belt they were large.

Although reports indicate that the number of stocker and feeder cattle expected to be purchased in the last 5 months of 1937 will be lower than in the same period last year, it is certain that the proportion that will be fed in the winter and in the spring of 1938 will be much larger than last year, particularly in the States affected by the 1936 drought.

The 1937 lamb crop is estimated by the Bureau of Agricultural Economics at 30,712,000 head, which is 267,000 (less than 1 per cent.) smaller than the 1936 crop but about 2 per cent. larger than the five-year average of 1931-35. The decrease from last year was in the western sheep States. The number saved in the country as a whole was the same as in the two previous years, 85.3 lambs per 100 ewes. The decrease was due therefore to the smaller number of breeding ewes on 1 January, 1937. In the native sheep States with favourable weather the number of lambs saved per 100 ewes was higher at 103.1 this year. In the western sheep States, however, it was only 77.5 per 100 ewes. Texas again considerably increased its lamb crop.

The 1936 drought in the northern Great Plains area (particularly Montana) caused a heavy movement of breeding flocks, both temporary and permanent, to other locations.

Wool production in the United States.

The preliminary estimate of the quantity of wool shorn and to be shorn in 1937 is 367,359,000 lb., according to the Bureau of Agricultural Economics. This is about 7,000,000 lb. or about 2 per cent. more than in 1936 and practically the same as the 5-year (1931-35) average.

The larger production in 1937 compared with 1936 was a result of both a larger number of sheep shorn and a larger average weight per fleece. Texas in particular increased its production. The estimated number of sheep shorn in 1937 was 46,221,000 compared with 45,663,000 in 1936. The average fleece weight was 7.95 lb. in 1937 and 7.89 in 1936.

The wool clip in Union of South Africa.

The wool clip for the 1936-37 season was 266,945,000 lb. as against 237,835,000 for the previous season. This is an increase of about 12 per cent. over last year and as last year's clip was about 14 per cent. higher than the previous year, in two years production has risen 28 per cent.

New Zealand sheep estimate.

The interim return of sheep as on 30 April 1937 gives a total of over 31,000,000. This figure, which represents an increase of over 1,000,000 on last year's total, is the highest recorded. It continues the sequence of annual increases obtaining since 1933, when 27,750,000 sheep were recorded.

The substantial increase noted in this year's total number of sheep is readily explained. Breeding ewes in 1936 attained their highest total up to that date, and this, combined with favourable lambing conditions last season, resulted in a record number of lambs. On the other hand killings, as evidenced by the export figures followed a normal trend. The net result of both factors was to increase the flock figures as already stated. The number of sheep in New Zealand at 30 April in each of the last ten years is shown in the following table:

Sheep in New Zealand.

30 April	Number
1937	31,210,734 (*)
1936	30,113,704
1935	29,076,754
1934	28,649,038
1933	27,755,966
1932	28,691,788
1931	29,792,516
1930	30,841,287
1929	29,051,382
1928	27,133,810

*) Interim figure.

Current information on livestock and derivatives.

Belgium: The health of stock remained satisfactory, some cases of pig pest and foot and mouth disease were observed

Irish Free State: Feed supplies during August were ample for all normal requirements. Milk yields were slightly below those of last year

France: Milk production declined appreciably owing to the falling off in the quality and quantity of green fodder.

Prices of liquid milk, butter and cheese are rising.

Greece Conditions during July and August were satisfactory for livestock. Diseases were reported in some places but they were successfully dealt with by the veterinary service Where droughty conditions persist, animals are suffering from the shortage of feed

Milk production is expected to be below last year's level.

Latvia The 1937 milk production was on the whole good, being 5 or 10 per cent higher than last year.

Netherlands: On the whole, feed for milch cows during August was quite good. Compared with the corresponding month of last year, milk production for the whole country was practically the same It was 5 per cent higher in Groningen and 2 per cent in Friesland and North Holland Milk production however was 5 per cent. lower in Utrecht and Limburg and 7 per cent. in Zeeland

United Kingdom Pastures during August have been fairly good. Grass has been fairly plentiful, but in the second half of the month the absence of rain was becoming noticeable in some districts, particularly in the southern half of the country In many pastures weeds are prevalent. Cattle and sheep have done well generally. Milk yields are about average for the time of year.

Switzerland Deliveries of milk to collecting points and cheese factories show, according to the inquiry made by the Information Bureau on prices of the Swiss Union of Farmers, an increase in July of 3.8 per cent. compared with those of the corresponding month last year

United States Milk production continued high during July with less than the usual seasonal decrease All States showed a higher production per cow than has been reported on 1 August in any of the past seven years owing to the extension of good pastures into mid-summer, increased feed supplies and the continued tendency of farmers to milk more than the usual proportion of their milk cows

Union of South Africa In the south-western area of Cape Province the weather in July continued to be exceptionally wet Farmers were fallowing old lands Grazing was good and stock rapidly improved in condition

Very cold weather and drought prevailed in most of the rest of the Province In the north west stock were compelled to trek in search of better pasturage In the Karroo area lambs made little progress but stock in general maintained their conditions surprisingly well Jackals and lynx were troublesome The same cold, dry conditions prevailed in July in the border districts, except in the coastal area where rains fell Many farmers had to use maize for feed In the north-east stock were losing condition, and slight rains towards the end of July offered little relief Conditions were worst of all in the Transkei area where some stock had died from the drought In the south-coast area on the other hand good rains fell

In Bechuanaland, despite the cold and drought, grazing was plentiful

In Natal similar conditions prevailed and the situation was serious as the winter fodder crop was a failure Considerable loss of stock has already occurred On the coast, where a few showers had fallen, conditions were a little better.

In the Orange Free State also, except for the south-west where nearly one inch of rain has fallen, stock farmers are facing a critical time. No green feed is available, and harvested lands provide almost the only grazing. Stock are already in poor condition. The wool crop will be of good quality.

In Transvaal the cold and drought have damaged the veld pastures but stock are in fair condition free of disease

Current information on sericulture.

France· Production is expected to approach that of last season. Rearings have not been good on the whole and unit-yields are rather small.

Italy· According to the most recent estimate, production of mulberries this year is about 24,571,200 centals against 23,604,600 in 1936 and 25,619,800 on the average of the five years ending 1935, percentages 104.1 and 95 9

Japon Favoured by the weather, fruiting of mulberries occurred in normal conditions

TRADE

Wheat. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Bulgaria	466	90	0	0	4,625	683	0	0	—	—
Hungary	199	1,579	0	0	13,121	8,600	0	0	—	—
Lithuania	0	0	0	0	0	1,273	0	0	—	—
Poland-Dantzig	8	60	0	0	1,131	1,165	0	0	—	—
Rumania	...	...	...	...	1) 21,750	1) 3,354	1) 1	1) 1	—	—
Yogoslavia	224	41	0	0	10,781	368	0	0	—	—
U. S S R.	...	...	...	...	1) 725	1) 16,796	1) 0	1) 134	—	—
Canada	5,162	15,548	7	0	104,917	139,215	88	0	—	—
Argentina	2,047	2,450	—	—	93,462	39,414	—	—	—	—
Chile	...	...	..	...	3) 0	3) 1,227	3) 0	3) 3	—	—
Uruguay	...	...	...	...	1) 1,874	1) 1,509	1) 0	1) 24	—	—
India: by sea 4)	1,797	97	2	0	9,992	435	8	292	—	—
» : by land 4)	...	...	...	...	3) 453	3) 435	3) 119	3) 134	—	—
Iraq	...	...	..	...	1) 2,809	1) 163	1) 0	1) 5	—	—
Iran	...	...	...	...	2) 423	2) 418	2) 0	2) 0	—	—
Manchukuo	...	...	—	—	3) 365	3) 531	—	—	—	—
Syria & Leb.: Fr m. t.	0	23	15	0	827	181	136	6	—	—
Turkey	...	...	—	—	1) 2,628	1) 317	—	—	—	—
Algeria	10	265	27	20	3,566	5,222	626	358	—	—
Egypt	...	...	...	..	1) 364	1) 3	1) 0	1) 1	—	—
French Morocco	...	...	...	...	3) 403	3) 2,309	3) 1,325	3) 0	—	—
Tunis	54	36	25	16	205	2 420	692	183	—	—
Australia	3,224	1,060	0	0	44,177	43,935	0	0	—	—
Importing Countries										
Germany	0	190	5,074	121	42	1,299	18,610	2,138	—	—
Austria	1	0	474	427	10	10	5,146	3,241	—	—
Belgo-Luxemb E. U.	13	43	1,781	2,024	2,609	970	26,247	24,318	—	—
Denmark	14	0	313	658	406	35	4,027	5,150	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	27	25	9	4	56	83	153	84	—	—
Finland	0	0	141	198	0	0	1 530	1,618	—	—
France	50	719	548	965	1,132	8,627	8,599	16,110	—	—
Greece	0	0	1,084	977	0	0	12,887	8,823	—	—
Irish Free State	0	0	678	1,132	0	0	7,320	8,753	—	—
Italy	0	0	2,661	480	70	11	40,812	9,144	—	—
Latvia	0	49	0	0	0	926	596	0	—	—
Norway	0	0	149	121	0	0	3,847	3,383	—	—
Netherlands	0	0	1,051	955	55	4	11,398	11,365	—	—
Portugal	0	0	5	0	0	2,443	22	153	—	—
United Kingdom	679	175	9,878	9,741	1,810	846	110,684	114,401	—	—
Sweden	5	293	77	84	795	2,119	1,148	1,010	—	—
Switzerland	2	0	502	985	5	3	10,636	10,002	—	—
Czechoslovakia	303	0	158	1	5,211	4	192	1,302	—	—
United States	1,287	16	758	3,290	3,172	163	26,086	30,269	—	—
Brazil	—	—	...	...	—	—	2) 18,077	2) 17,417	—	—
Colombia	—	—	..	...	—	—	2) 280	2) 282	—	—
Peru	...	...	...	...	1) 0	1) 0	1) 2,443	1) 1,274	—	—
Ceylon	—	—	9	6	—	—	118	100	—	—
China	..	...	...	...	2) 726	2) 132	2) 1,060	2) 3,474	—	—
Chosen	...	...	...	...	1) 2	1) 0	1) 50	1) 85	—	—
Taiwan	—	—	...	...	—	—	7	45	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 2	1) 1	—	—
Japan	—	—	...	...	—	—	2) 3,942	2) 7,683	—	—
British Malaya	...	...	...	...	1) 2	1) 2	1) 7	1) 15	—	—
Palestine: Br. m. t.	...	...	...	...	3) 0	3) 1	3) 1 018	3) 49	—	—
Union of South Afr.	...	...	...	...	1) 583	1) 0	1) 12	1) 23	—	—
New Zealand	...	...	...	...	2) 0	2) 0	2) 231	2) 170	—	—
Totals	**15,572**	**22,759**	**25,426**	**22,204**	**335,289**	**287,951**	**320,182**	**284,423**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Wheat flour. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries.										
Germany	0	79	205	1	134	758	478	31	—	—
Bulgaria	2	0	0	0	86	0	0	0	—	—
Spain	—	—	—	—	—	—	—	—	—	—
France	193	202	56	84	2,845	3,199	847	1,222	—	—
Hungary	74	145	0	0	1,352	1,247	0	0	—	—
Italy	205	163	2	0	4,417	4,353	38	14	—	—
Latvia	0	0	0	0	0	0	0	0	—	—
Lithuania	0	0	0	0	0	0	0	0	—	—
Poland - Dantzig	0	157	0	0	1,449	2,163	0	0	—	—
Romania	...	...	...	...	1) 6	1) 2	1) 0	1) 0	—	—
Yugoslavia	8	4	0	0	123	74	0	0	—	—
U. S. S. R.	...	...	...	...	1) 1,317	1) 638	1) 43	3) 371	—	—
Canada	657	872	8	7	8,870	9,759	112	120	—	—
United States	517	568	10	19	7,628	6,732	71	88	—	—
Argentina	127	181	—	—	2,147	1,761	—	—	—	—
Chile	...	...	...	...	3) 0	3) 69	3) 2	3) 24	—	—
Uruguay	...	...	...	...	1) 121	1) 285	1) 0	1) 0	—	—
Chosen	...	...	...	...	1) 50	1) 109	1) 0	1) 0	—	—
India, by sea 4)	115	28	0	2	855	399	21	11	—	—
Iraq	...	...	...	...	1) 86	1) 71	1) 0	1) 1	—	—
Iran	...	...	...	...	2) 0	2) 4	2) 0	2) 0	—	—
Japan	...	...	...	...	2) 1,663	2) 3,687	2) 414	2) 180	—	—
Algeria	44	72	6	4	554	843	80	89	—	—
French Morocco	...	...	...	...	3) 10	3) 4	3) 0	3) 0	—	—
Tunis	19	27	4	6	284	410	193	31	—	—
Australia	779	1,017	0	0	11,063	12,147	0	1	—	—
Importing Countries										
Austria	2	1	22	43	49	9	512	757	—	—
Belgo-Luxemb. E. U.	4	4	8	6	78	60	104	90	—	—
Denmark	4	2	14	24	25	22	161	217	—	—
Estonia	0	0	0	0	0	0	0	0	—	—
Finland	0	0	68	76	0	0	479	687	—	—
Greece	0	0	0	2	0	0	15	22	—	—
Irish Free State	0	0	7	15	0	0	140	159	—	—
Norway	0	0	33	75	1	4	902	884	—	—
Netherlands	105	0	144	151	433	7	1,422	1,207	—	—
Portugal	0	0	8	6	0	0	45	97	—	—
United Kingdom	114	240	682	678	2,042	2,653	9.491	9,528	—	—
Sweden	0	5	0	0	26	17	3	1	—	—
Czechoslovakia	0	0	0	4	348	6	9	24	—	—
Haiti	—	—	...	...	—	—	1) 225	1) 235	—	—
Brazil	—	—	...	...	—	—	2) 809	2) 913	—	—
Colombia	—	—	...	...	—	—	2) 9	2) 9	—	—
Peru	...	...	...	...	1) 0	1) 0	1) 30	1) 30	—	—
Ceylon	—	—	23	17	—	—	353	337	—	—
China	...	...	...	...	2) 216	2) 22	2) 457	2) 731	—	—
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 940	1) 1,189	—	—
Outer Provinces	—	—	...	...	—	—	1) 602	1) 554	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 379	1) 361	—	—
British Malaya	...	...	...	...	1) 133	1) 116	1) 1,397	1) 1,220	—	—
Manchukuo	...	...	...	...	3) 4	3) 3	3) 2,100	3) 5,019	—	—
Palestine Br. m. t.	...	...	...	...	3) 0	3) 0	3) 592	3) 424	—	—
Syria & Leb.: Fr. m. t.	4	32	6	0	189	121	89	129	—	—
Egypt	...	...	...	...	1) 28	1) 0	1) 48	1) 69	—	—
Union of South Africa	...	...	...	...	1) 3	1) 2	1) 10	1) 12	—	—
New Zealand	...	...	...	...	2) 1	2) 1	2) 44	2) 200	—	—
Totals	**2,973**	**3,798**	**1,306**	**1,220**	**48,634**	**51,757**	**23,666**	**27,288**	—	—

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1) Up to 30 June — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Total Wheat and Flour †). — Thousand centals (1 centals = 100 lb.).

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX.*)	NET IM.**)
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Germany	—	173	5,347	—	—	131	19,027	—	—	—
Austria	—	—	500	483	—	—	5,754	4,228	—	—
Belgo-Luxem. E. U.	—	—	1,774	1,983	—	—	23,674	23,388	—	—
Bulgaria	469	90	—	—	4,740	683	—	—	—	—
Denmark	—	—	312	686	—	—	3,802	5,376	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	18	21	—	—	—	—	97	1	—	—
Finland	—	—	232	299	—	—	2,169	2,534	—	—
France	—	—	316	90	—	—	4,802	4,848	—	—
Greece	—	—	1,084	979	—	—	12,906	8,852	—	—
Hungary	298	1,772	—	—	14,924	10,263	—	—	—	—
Irish Free State	—	—	690	1,153	—	—	7,509	8,965	—	—
Italy	—	—	2,392	263	—	—	34,903	3,346	—	—
Latvia	—	49	0	—	—	926	596	—	—	—
Lithuania	0	0	—	—	0	1,274	—	—	—	—
Norway	—	—	194	221	—	—	5,047	4,556	—	—
Netherlands	—	—	1,103	1,155	—	—	12,661	12,961	—	—
Poland-Dantzig	8	270	—	—	3,062	4,049	—	—	—	—
Portugal	—	7	15	—	—	2,161	81	—	—	—
Romania	...	...	—	—	1) 21,757	1) 3,356	—	—	—	—
United Kingdom	—	—	9,956	10,151	—	—	118,805	122,721	—	—
Sweden	—	216	72	—	—	1,131	323	—	—	—
Switzerland 4)	—	—	500	985	—	—	10,632	9,999	—	—
Czechoslovakia	146	—	—	5	5,470	—	—	1,322	—	—
Yugoslavia	235	46	—	—	10,950	466	—	—	—	—
Totals Europe	*1,174*	*2,644*	*24,487*	*18,453*	*60,903*	*24,440*	*262,788*	*213,097*	—	—
U. S. S. R.	...	...	—	—	1) 2,425	1) 17,018	—	—	—	—
Canada	6 020	16,701	—	—	116,507	152,057	—	—	—	—
United States	1,204	—	—	2,542	—	—	12,839	21,247	—	—
Haiti	—	—	...	...	—	—	1) 299	1) 314	—	—
Argentina	2,216	2,691	—	—	96,325	41,762	—	—	—	—
Brazil	—	—	...	...	—	—	2) 19,155	2) 18,635	—	—
Chile	—	...	...	—	—	3) 1,286	3) 3	—	—	—
Colombia	—	—	...	...	—	—	2) 293	2) 294	—	—
Peru	—	—	...	...	—	—	1) 2,483	1) 2,513	—	—
Uruguay	...	...	—	—	1) 2,036	1) 1,865	—	—	—	—
Ceylon	—	—	40	29	—	—	588	549	—	—
China	—	—	...	...	—	—	2) 654	2) 4,287	—	—
Chosen	...	...	—	—	1) 19	1) 61	—	—	—	—
Taiwan	—	—	...	...	—	—	2) 7	2) 45	—	—
India: by sea 5)	1,948	132	—	—	11,096	661	—	—	—	—
» : by land 5)	...	...	—	—	3) 334	3) 301	—	—	—	—
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 1,254	1) 1,585	—	—
Outer Provinces	—	—	...	...	—	—	1) 803	1) 739	—	—
Indo-China	—	—	...	...	—	—	1) 506	1) 482	—	—
Iraq	...	...	—	—	1) 2,922	1) 251	—	—	—	—
Iran	...	...	—	—	1) 423	1) 422	—	—	—	—
Japan	—	—	...	...	—	—	2) 2,278	2) 3,008	—	—
British Malaya	—	—	...	...	—	—	1) 1,691	1) 1,485	—	—
Manchukuo	—	—	...	...	—	—	3) 2,429	3) 6,157	—	—
Palestine: Br. m. t.	—	—	...	...	—	—	3) 1,807	3) 612	—	—
Syria & Leb.: Fr. m.t.	—	64	18	—	824	164	—	—	—	—
Turkey	...	...	—	—	1) 2,628	1) 317	—	—	—	—
Algeria	33	335	—	—	3,572	5,969	—	—	—	—
Egypt	...	—	—	...	1) 338	—	—	1) 90	—	—
French Morocco	—	...	...	—	—	3) 2,314	3) 909	—	—	—
Tunis	48	49	—	—	—	2,741	366	—	—	—
Union of South. Afr.	...	—	—	...	1) 563	—	—	1) 36	—	—
Australia	4,263	2,416	—	—	58,928	60,120	—	—	—	—
New Zealand	—	—	...	...	—	—	2) 288	2) 436	—	—
Totals	**16,906**	**25,032**	**24,545**	**21,024**	**359,843**	**311,758**	**311,440**	**275,611**	—	—

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*) Excess of exports over imports. — **) Excess of imports over exports.

†) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333.333 centals of grain.

1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) Wheat only. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries	**Rye.** — Thousand centals (1 cental = 100 lb.).									
Germany	0	0	1,101	90	1	821	3,232	691	—	—
Bulgaria	0	0	0	0	254	121	0	0	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	22	0	200	333	405	331	—	—
Hungary	81	22	0	0	2,816	210	0	0	—	—
Latvia	0	245	144	0	623	2,041	205	0	—	—
Lithuania	0	0	0	0	47	1,974	0	0	—	—
Poland-Dantzig	19	275	0	0	4,569	4,788	0	0	—	—
Romania	...	...	...	...	1) 2,557	1) 341	1) 0	1) 0	—	—
Sweden	0	16	0	0	4	903	166	19	—	—
Yugoslavia	3	0	0	0	92	0	0	0	—	—
U. S. S. R.	...	...	...	...	1) 1,552	1) 1,475	1) 0	1) 0	—	—
Canada	106	372	2	0	2,034	1,375	3	0	—	—
Argentina	13	120	—	—	3,394	2,273	—	—	—	—
Algeria	6	4	0	0	26	27	0	0	—	—
Importing Countries										
Austria	2	1	252	55	9	19	3,852	1,004	—	—
Belgo-Luxemb. E. U.	2	0	9	496	39	28	1,126	3,680	—	—
Denmark	0	0	119	429	0	1	3,809	4,174	—	—
Finland	0	0	76	96	1	0	1,418	1,505	—	—
France	0	0	4	6	0	0	27	28	—	—
Greece	0	0	0	0	0	0	1	0	—	—
Italy	0	0	4	5	0	0	141	179	—	—
Norway	0	0	134	274	0	0	2,933	3,358	—	—
Netherlands	16	0	114	244	2,028	76	1,237	1 747	—	—
United Kingdom	0	0	17	9	.	4	. .	122	—	—
Switzerland	0	0	1	31	0	0	604	353	—	—
Czechoslovakia	0	0	1	1	3	4	15	18	—	—
United States	164	0	0	163	303	4	2,045	1 221	—	—
Palestine: Br. m t .	—	—	...	..	—	—	2) 90	2) 72	—	—
French Morocco	...	...	...	..	2) 0	2) 0	2) 0	2) 0	—	—
Totals	**412**	**1,055**	**2,000**	**1,899**	**20,552**	**16,818**	**21,309**	**18,502**	—	—

1) Up to 30 June. — 2) Up to 30 April.

COUNTRIES	July				Twelve months (August 1-July 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Barley. — Thousand centals (1 centals = 100 lb.).									
Exporting Countries										
Bulgaria	4	0	0	0	606	43	0	0	—	—
Denmark	8	1	5	0	1,695	1,539	1,426	76	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	19	14	0	0	638	282	0	361	—	—
Latvia	0	0	0	0	0	244	0	0	—	—
Lithuania	0	0	0	0	0	328	18	0	—	—
Poland - Dantzig	5	296	0	0	6,342	7,728	0	0	—	—
Romania	...	...	...	...	1) 13,504	1) 3,881	1) 0	1) 0	—	—
Sweden	0	0	0	0	2	2	12	0	—	—
Czechoslovakia	0	24	0	0	1,163	806	2	2	—	—
Yugoslavia	12	0	0	0	192	2	1	25	—	—
U. S. S. R.	...	...	...	...	1) 190	1) 13,477	1) 0	1) 0	—	—
Canada	272	908	0	0	8,427	3,684	0	0	—	—
United States	115	256	113	201	2,332	4,738	8,145	337	—	—
Argentina	167	370	—	—	7,032	4,420	—	—	—	—
Chile	...	...	—	—	3) 1,451	3) 370	—	—	—	—
India: by sea 4)	153	5	3	8	637	41	37	119	—	—
Iran	...	...	...	...	2) 448	2) 120	2) 0	2) 0	—	—
Iraq	...	...	...	...	1) 6,366	1) 2,930	1) 0	1) 0	—	—
Manchukuo	...	...	—	—	3) 19	3) 21	—	—	—	—
Syria & Leb.: Fr. m. t.	14	74	7	0	1,177	927	26	6	—	—
Turkey	...	...	—	—	1) 1,375	1) 389	—	—	—	—
Algeria	13	111	21	90	1,395	789	595	575	—	—
Egypt	...	...	...	...	1) 568	1) 0	1) 3	1) 13	—	—
French Morocco	...	...	...	...	3) 4,251	3) 1,914	3) 0	3) 0	—	—
Union of South Afr	...	...	...	...	1) 0	1) 1	1) 0	1) 0	—	—
Australia	5	115	0	0	1,254	1,240	0	0	—	—
Importing Countries										
Germany	0	0	297	129	0	0	3,207	1,533	—	—
Austria	0	0	40	86	1	2	927	1,202	—	—
Belgo-Luxemb. E. U.	57	29	233	482	759	457	10,567	9,251	—	—
Estonia	0	0	0	0	0	0	56	33	—	—
Finland	0	0	0	2	0	0	34	82	—	—
France	0	0	79	497	6	0	5,801	5,064	—	—
Greece	0	0	0	1	0	0	178	153	—	—
Irish Free State	0	0	0	32	1	11	545	413	—	—
Italy	0	0	14	32	0	0	745	1,034	—	—
Norway	0	0	80	15	0	0	618	336	—	—
Netherlands	1	0	357	545	473	214	4,641	6,589	—	—
United Kingdom	0	0	648	1,385	107	8	19,926	22,254	—	—
Switzerland	0	0	135	59	0	0	2,983	2,547	—	—
Ceylon	—	—	1	1	—	—	11	16	—	—
Chosen	...	...	...	...	1) 11	1) 7	1) 12	1) 3	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 0	1) 0	—	—
Japan	—	—	...	...	—	—	2) 299	2) 70	—	—
Palestine: Br. m t	...	...	...	...	3) 0	3) 1	3) 620	3) 404	—	—
Tunis	87	1	3	84	206	1,666	842	130	—	—
New Zealand	...	...	...	...	2) 0	2) 0	2) 101	2) 229	—	—
Totals	**932**	**2,204**	**2,036**	**3,649**	**62,628**	**52,282**	**62,378**	**52,897**	—	—

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1) Up to 30 June — 2) Up to 31 May — 3) Up to 30 April — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

COUNTRIES	July				Twelve months (August 1-July 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Oats. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
Bulgaria	0	0	0	0	73	0	0	0	—	—
Hungary	0	6	0	0	169	107	0	0	—	—
Lithuania	0	0	0	0	0	518	47	0	—	—
Poland-Dantzig	2	169	0	0	1,476	2,595	0	0	—	—
Romania	...	...	...	...	1) 664	1) 379	1) 0	1) 0	—	—
Czechoslovakia	17	0	0	0	919	82	0	13	—	—
Yugoslavia	17	0	0	0	81	73	0	0	—	—
U. S. S. R.	...	...	...	...	1) 119	1) 3,282	1) 5	1) 8	—	—
Canada	189	505	2	115	2,285	4,074	3	116	—	—
United States	10	2	1	0	29	204	50	22	—	—
Argentina	640	149	—	—	8,436	3,092	—	—	—	—
Chile	...	...	...	...	3) 1,132	3) 503	3) 0	3) 0	—	—
Chosen	...	...	...	...	1) 42	1) 0	1) 1	1) 4	—	—
India: by sea 4)	3	1	—	—	9	5	—	—	—	—
French Morocco	...	...	...	...	3) 172	3) 131	3) 0	3) 0	—	—
Tunis	7	2	0	0	55	215	7	0	—	—
Union of South Afr.	...	...	...	...	1) 83	1) 6	1) 0	1) 0	—	—
Australia	18	3	9	0	121	97	13	2	—	—
New Zealand	...	...	...	...	2) 2	2) 1	2) 8	2) 19	—	—
Importing Countries:										
Germany	0	0	271	195	1	1	1,118	463	—	—
Austria	0	0	96	52	1	1	848	616	—	—
Belgo-Luxemb. E. U.	0	0	164	55	4	0	1,011	898	—	—
Denmark	0	0	48	6	189	440	1,480	142	—	—
Estonia	0	0	0	0	0	0	129	45	—	—
Finland	0	0	11	28	0	0	125	769	—	—
France	0	0	50	53	6	7	2,393	472	—	—
Greece	0	0	0	3	1	0	93	92	—	—
Irish Free State	0	0	0	0	0	0	0	0	—	—
Italy	0	1	32	64	1	4	589	3,383	—	—
Latvia	0	0	0	0	0	130	11	0	—	—
Norway	0	0	0	0	1	1	132	6	—	—
Netherlands	10	0	121	68	1,138	221	709	512	—	—
United Kingdom	1	3	231	269	35	41	2,085	2 865	—	—
Sweden	0	2	108	12	55	180	634	279	—	—
Switzerland	0	0	232	340	0	0	4,562	4,415	—	—
Uruguay	...	...	...	...	1) 0	1) 1	1) 10	1) 0	—	—
Ceylon	—	—	1	1	—	—	14	13	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 0	1) 0	—	—
Japan	—	—	...	...	—	—	2) 51	2) 49	—	—
Syria and Lebanon: Fr. m. t.	1	0	0	0	5	1	1	2	—	—
Algeria	2	48	9	7	812	259	41	46	—	—
Egypt	—	—	...	...	—	—	1) 1	1) 2	—	—
Totals	**917**	**891**	**1,386**	**1,268**	**18,115**	**16,651**	**16,171**	**15,253**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	July				Nine months (November 1-July 31)				Twelve months (Nov 1-Oct 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936 37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Bulgaria	189	216	0	0	2,333	1,411	0	0	1,896	0
Hungary	103	0	0	237	1,980	32	10	6,855	40	7,305
Romania	...	...	...	...	1) 14,512	1) 14,000	1) 0	1) 0	18,831	0
Yugoslavia	1,816	127	0	0	9,364	1,006	1	0	1,445	0
U S S R	...	...	...	...	1) 0	1) 12	1) 1	1) 0	12	0
Haiti	0	0	—	—	2	3	—	—	3	—
Santo Domingo	...	..	—	—	2) 198	2) 122	—	—	307	—
Argentina	17,753	12,010	—	—	165,610	109,917	—	—	172,111	—
Brazil	...	...	—	—	2) 32	2) 71	—	—	113	—
Chile	...	...	...	. .	3) 0	3) 0	3) 0	3) 0	0	0
China	...	.	—	—	2) 189	2) 100	—	—	189	—
India by sea 4)	0	0	—	—	2	2	—	—	2	—
Netherlands Indies										
Java and Madura	...	...	—	—	1) 3,378	1) 1,958	—	—	2,485	—
Outer Provinces	...	...	—	—	1) 1,232	1) 415	—	—	765	—
Indo-China	...	...	—	—	1) 4,754	1) 4,987	—	—	10,542	—
Iraq		. .	—	—	1) 6	1) 5	—	—	6	—
Manchukuo	..	..	—	—	3) 1,663	3) 1,026	—	—	1,716	—
Syria and Lebanon Fr m t	0	1	0	1	4	58	1	2	78	2
Turkey	..	.	—	—	1) 4	1) 0	—	—	0	—
Egypt	..	.	.		1) 50	1) 1	1) 0	1) 6	2	9
Madagascar		.	. .	.	2) 29	2) 63	2) 0	2) 0	356	—
French Morocco					3) 390	3) 533	3) 0	3) 0	1,391	0
Union of South Afr	2 074	5			3,185	1,446	1) 1	1) 4	1,446	5
Importing Countries										
Germany	0	0	4 203	454	0	0	17,061	3,876	0	4,174
Austria	0	0	707	625	0	0	5,776	5,486	0	7,024
Belgo - Luxemburg Econ Union	19	68	1 544	1,313	415	436	16 225	14,582	507	19,404
Denmark	0	0	908	360	0	0	12,423	2,839	0	4,521
Spain	—	—	—	—	—	—	—	—		
Estonia	0	0	0	0	0	0	241	0	0	0
Finland	0	0	96	132	0	0	1,236	1,657	0	2,031
France	1	0	845	851	14	2	11,629	10,598	3	15,328
Greece	0	0	112	197	0	0	1,021	1,407	0	1,519
Irish Free State	0	0	652	474	0	0	4,717	3 337	0	4,806
Italy	0	0	455	103	0	0	1,827	3,616	0	4,001
Latvia	0	0	0	0	0	0	108	0	0	0
Norway	0	0	221	318	0	0	2,640	2,014	0	2,759
Netherlands	0	0	1,862	1,611	1	2	16 662	15,168	2	19,688
Poland-Dantzig	0	0	39	0	0	0	152	0	0	0
Portugal	0	0	58	10	0	2	213	303	2	388
United Kingdom	291	153	5,683	5,282	1,900	971	62,492	57,231	1,479	79,085
Sweden	0	0	476	140	0	0	3,577	1,087	0	1,422
Switzerland	0	0	179	118	0	0	2,129	1,378	0	1,742
Czechoslovakia	0	0	256	301	18	0	1,061	1,747	0	2,345
Canada	2	0	1,131	367	217	45	8,807	2,017	62	4,723
United States	7	41	8,812	728	57	249	44,013	5,995	295	13,732
Peru	...	...	. .	. .	1) 0	1) 0	1) 1	1) 33	0	37
Chosen	...	...	...	...	1) 19	1) 1	1) 192	1) 441	3	599
Japan	—	—	...	...	—	—	2) 4,410	2) 3,708	—	6,456
Palestine Brit m t	...	...	..	...	3) 1	3) 35	3) 282	3) 55	40	154
Algeria	0	0	0	0	65	12	49	32	30	93
Tunis	0	0	0	0	0	5	209	0	5	142
Australia	0	0	0	0	0	0	4	21	1	21
New Zealand	...	...	...	...	2) 0	2) 0	2) 80	2) 48	0	57
Totals	**22,255**	**12,621**	**28,239**	**13,622**	**211,624**	**138,928**	**219,261**	**145,543**	**216,165**	**203,572**

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1) Up to 30 June — 2) Up to 31 May — 3) Up to 30 April — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

Rice. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JULY				SEVEN MONTHS (January 1-July 31)				TWELVE MONTHS (January 1-Dec 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	148	96	2	2	2,096	1,443	10	19	3,147	28
United States	161	1	181	63	567	104	1,311	525	235	1,151
Brazil	...	...	—	—	2) 192	2) 571	—	—	1,176	—
Chosen	..	...	...	..	1) 42	1) 50	1) 0	1) 1	153	3
Taiwan	...	.	...	..	2) 1	2) 0	2) 0	2) 0	1	0
India by sea 4)	5) 527	2,404	6) 2,256	794	7) 13,841	19,801	8) 11,855	2,830	29,931	3,236
» by land 4)	...	..	...	...	3) 247	3) 207	3) 809	3) 762	513	1,385
Indo-China	...	...	...	...	1) 16,417	1) 20,077	1) 12	2) 22	37,558	69
Iran	...	...	...	...	2) 715	2) 649	2) 0	2) 0	1,251	0
Iraq	.	...	...	...	1) 5	1) 6	1) 0	1) 0	13	1
Siam	1,314	2,860	—	—	12 471	21,013	—	—	35,249	—
Egypt	...	..	..	...	1) 2,222	1) 1,203	1) 1	1) 1	3,070	2
Importing Countries										
Germany	70	44	368	307	274	280	2,297	2,085	561	3,805
Austria	0	0	60	58	0	0	403	328	0	604
Belgo Luxemb E U	62	13	121	123	373	71	1,080	556	220	1,216
Denmark	0	0	5	2	0	0	104	175	0	182
Estonia	—	—	3	2	—	—	13	10	—	22
Finland	—	—	37	47	—	—	200	158	—	313
France	32	40	836	2,056	581	189	11,054	9,575	376	18,870
Greece	0	0	74	62	0	0	459	355	0	665
Hungary	0	0	54	34	0	0	232	218	0	349
Irish Free State	0	0	7	7	0	0	45	50	0	83
Latvia	0	0	1	2	0	0	13	9	0	16
Lithuania	0	0	0	2	0	0	7	5	0	9
Norway	0	0	12	12	0	0	82	74	0	101
Netherlands	248	198	353	215	1,805	991	3,385	2,316	2,437	4,414
Poland Dantzig	13	29	180	13	46	71	773	652	211	1,207
Portugal	0	0	12	142	0	0	33	183	0	455
Romania	—	—	...	..	—	—	2) 213	2) 173	—	654
United Kingdom	10	11	220	159	116	90	1,766	1,571	202	2,490
Sweden	—	—	30	40	—	—	233	183	—	234
Switzerland	0	0	17	31	0	0	235	253	0	521
Czechoslovakia	0	0	124	156	0	0	689	670	0	1,138
Yugoslavia	0	0	14	21	0	0	229	269	0	492
U S S R		...	...	...	1) 9	1) 11	1) 681	1) 590	21	1,159
Canada	4	2	258	123	25	12	621	658	28	783
Haiti	—	—	3	5	—	—	21	26	—	44
Chile	—	—		..	—	—	3) 134	3) 155	—	356
Colombia	—	—		.	—	—	2) 38	2) 133	—	267
Peru	...	...	...	.	1) 0	1) 0	1) 142	1) 569	0	737
Ceylon	0	0	855	942	1	2	7,377	7,235	2	11,926
China	...	...	...	...	2) 363	2) 234	2) 1,900	2) 3,182	592	6,842
Netherlands Indies										
Java and Madura	...		...	...	1) 88	1) 30	1) 33	1) 158	263	190
Outer Provinces	.	...	...	...	1) 118	1) 82	1) 1,363	1) 2,533	246	4,915
Japan	...	..	...	...	2) 98	2) 67	2) 32	2) 158	234	1,221
British Malaya	...	...	...	...	1) 1,296	1) 1,905	1) 7,255	1) 7,780	4,091	16,150
Manchukuo	...	...	...	...	3) 12	3) 14	3) 495	3) 1,083	39	2,360
Palestine Br m t	...	...	...	...	3) 48	3) 0	3) 175	3) 95	0	396
Syria & Leb.· Fr.m t	0	0	22	13	0	0	284	202	0	412
Turkey	—	—	...	..	—	—	1) 0	1) 5	—	7
Algeria	4	0	14	14	25	2	558	153	11	480
Madagascar	..	...	...	..	2) 40	2) 26	2) 0	2) 28	54	65
French Morocco	—	—	...	..	—	—	3) 235	3) 42	—	187
Tunis	0	0	9	5	0	0	269	24	0	114
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 724	1) 659	0	1,266
Australia	31	30	1	1	342	136	32	35	267	72
New Zealand	...	...	...	...	2) 1	2) 0	2) 42	2) 41	0	71
Totals	9) **2,097**	**5,728**	9) **3,873**	**5,453**	9) **40,636**	**69,337**	9) **48,099**	**49,572**	**122,152**	**93,735**

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1) Up to 30 June — 2) Up to 31 May — 3) Up to 30 April — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries — 5) Of which trade with Burma 2 thousand centals — 6) Of which trade with Burma 2,256 thousand centals — 7) Of which trade with Burma 8 thousand centals. — 8) Of which trade with Burma 11,853 thousand centals -- 9) Not including India by sea

COUNTRIES	JULY				SEVEN MONTHS (January 1-July 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
	Linseed. — Thousand centals (1 cental = 100 lb)									
Exporting Countries										
Lithuania	1	23	0	0	108	202	0	0	525	0
Romania		.	. .	. . .	2) 3	2) 2	2) 0	2) 0	39	0
Argentina . . .	2,521	2 661	—	—	26 170	17,890	—	—	32,715	—
Uruguay .	.	.	—	—	1) 661	1) 1,149	—	—	1,648	—
China	. .		—	—	2) 125	2) 562	—	—	812	—
India by sea 4)	407	581	0	0	2,426	3,377	0	0	6,959	0
» by land 4)	—	—	. .	.	— .	—	3) 67	3) 134	—	308
Iraq	.		—	—	1) 9	1) 0	—	—	24	—
French Morocco	.		—	—	3) 36	3) 24	—	—	211	—
Tunis	1	0	0	0	1	0	1	0	0	0
New Zealand	.	. .	. . .	. .	2) 4	2) 1	2) 0	2) 0	9	0
Importing Countries										
Germany .	0	0	267	449	0	0	2 371	3,323	0	4,824
Austria	0	0	0	0	0	2	6	6	2	13
Belgo Luxemb E U.	0	1	177	156	56	88	1,549	1,352	124	2,419
Denmark	—	—	31	32	—	—	314	270	—	449
Spain .	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	0	4	8	2	0	20	3	20
Finland . .	0	0	9	7	0	0	94	80	0	136
France .	0	0	289	509	6	3	4 053	4,122	4	6,179
Greece . .	0	0	13	7	0	0	64	27	0	71
Hungary .	0	0	0	0	1	0	19	4	0	4
Irish free State	0	0	7	14	0	0	62	70	0	120
Italy	0	0	106	72	0	0	990	607	0	1 194
Latvia	0	0	0	2	43	26	12	33	47	59
Norway .	0	0	62	51	0	0	382	323	0	473
Netherlands . .	2	2	615	409	85	72	4,419	3,707	101	7,287
Poland Dantzig .	0	2	0	0	0	76	0	0	78	0
United Kingdom	0	0	396	770	0	1	3,984	3,800	1	6,088
Sweden	—	—	150	75	—	—	776	452	—	808
Czechoslovakia	0	0	46	54	0	0	379	326	0	536
Yugoslavia .	0	0	19	1	0	0	124	60	0	95
Canada .	0	0	11	50	3	4	296	465	101	726
United States . .	—	—	1,155	65	—	—	10 986	3,886	—	8,604
Japan . .	. .	.	.	.	2) 0	2) 0	2) 98	2) 110	0	284
Palestine· Br m t .	—	—		.	—	—	3) 14	3) 13	—	27
Algeria . .	0	0	0	0	0	1	29	1	3	2
Egypt	. . .	. . .	. .	. . .	1) 6	1) 1	1) 0	1) 2	4	7
Australia	0	0	58	122	0	0	508	354	0	515
Totals .	**2,932**	**3,270**	**3,411**	**2,849**	**29,751**	**23,883**	**31,597**	**23,547**	**43,410**	**41,248**

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1) Up to 30 June — 2) Up to 31 May — 3) Up to 30 April — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries	**Cotton.** — Thousand centals (1 cental = 100 lb.).									
United States . . .	645	812	107	102	28,443	31,337	1,278	774	—	—
Haiti	1	5	—	—	121	126	—	—	—	—
Santo Domingo . .	...	...	—	—	2) 2	2) 0	—	—	—	—
Argentina	11	182	—	—	675	1,030	—	—	—	—
Brazil	...	...	—	—	2) 3,546	2) 2,255	—	—	—	—
Peru	...	...	—	—	1) 1,522	1) 1,536	—	—	—	—
India: by sea 4) . .	1,110	1,179	212	130	17,249	14,800	1,979	1,275	—	—
» : by land 4) .	...	...	—	—	3) 7	3) 5	—	—	—	—
Netherlands Indies Java and Madura	...	...	—	—	1) 27	1) 18	—	—	—	—
Iraq . . .	...	...	...	...	1) 40	1) 19	1) 2	1) 1	—	—
Iran . . .	...	...	...	...	2) 338	2) 269	2) 0	2) 0	—	—
Syria and Lebanon Fr. m. t. .	2	1	0	0	81	79	0	0	—	—
Turkey	...	...	—	—	1) 313	1) 450	—	—	—	—
Egypt	...	..	—	—	1) 8,450	1) 7,690	—	—	—	—
French Morocco	...	...	..	...	3) 1	3) 0	3) 1	3) 1	—	—
Union of South Afr.	...	...	...	...	1) 9	1) 9	1) 11	1) 0	—	—
Importing Countries										
Germany	0	1	513	329	2	574	5,779	7,265	—	—
Austria . . .	0	0	55	53	1	1	871	877	—	—
Belgo-Luxemb. E. U.	73	93	188	181	757	653	2,938	2,378	—	—
Bulgaria	0	0	16	4	0	0	193	180	—	—
Denmark	—	—	14	14	—	—	204	177	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	14	12	0	0	132	119	—	—
Finland	0	0	19	19	1	0	299	279	—	—
France	47	22	302	488	413	334	6,955	7,139	—	—
Greece	0	0	4	5	0	10	65	110	—	—
Hungary	0	0	42	53	0	0	552	560	—	—
Italy	0	0	272	134	0	0	3,598	1,909	—	—
Latvia	0	0	6	7	0	0	114	97	—	—
Lithuania .	0	0	4	3	0	0	43	32	—	—
Norway	0	0	3	5	0	0	75	70	—	—
Netherlands . . .	0	0	136	86	16	6	1,360	1,001	—	—
Poland - Dantzig . .	0	0	143	127	2	4	1,636	1,615	—	—
Portugal	—	—	12	25	—	—	555	484	—	—
Romania . .	...	...	...	..	2) 0	2) 0	2) 262	2) 131	—	—
United Kingdom .	49	63	828	1,359	609	672	15,885	15,169	—	—
Sweden	—	—	55	55	—	—	754	672	—	—
Switzerland . . .	5	0	34	40	5	1	715	549	—	—
Czechoslovakia . .	4	3	173	134	53	48	2 516	2,129	—	—
Yugoslavia . . .	0	0	28	39	2	0	410	375	—	—
U. S. S. R. . . .	...	...	...	...	1) 313	1) 0	1) 428	1) 510	—	—
Canada	—	—	124	59	—	—	1,681	1,357	—	—
Chile	—	—	...	...	—	—	3) 43	3) 19	—	—
Colombia . .	—	—	...	...	—	—	2) 58	2) 60	—	—
Ceylon	0	0	2	1	0	0	20	22	—	—
China	...	...	...	...	2) 1,097	2) 831	2) 412	2) 797	—	—
Chosen . . .	...	...	...	...	1) 0	1) 0	1) 30	1) 20	—	—
Taiwan	—	—	...	...	—	—	2) 7	2) 5	—	—
Indo China . .	...	...	...	...	1) 17	1) 9	1) 252	1) 107	—	—
Japan	...	...	...	...	2) 598	2) 455	2) 19,031	2) 14,659	—	—
Manchukuo .	...	...	...	...	3) 3	3) 0	3) 551	3) 328	—	—
Palestine: Br. m. t.	...	...	...	...	3) 0	3) 0	3) 9	3) 14	—	—
Algeria	0	0	0	1	2	1	5	5	—	—
Australia . . .	0	0	3	5	0	1	52	86	—	—
Totals . .	**1,947**	**2,361**	**3,309**	**3,470**	**64,715**	**63,223**	**71,761**	**63,357**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Wool. — Thousand lb.

COUNTRIES		July				Eleven months (Sept 1-July 31)				Twelve months (Sept 1-Aug 31)	
		Exports		Imports		Exports		Imports		Exports	Imports
		1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries											
Hungary		152	51	95	331	941	631	1,164	1,856	952	1,900
Irish Free State		1,993	1,777	73	108	15,108	14,282	756	516	16,098	569
Argentina	a)	11,394	6,678	—	—	244,225	223,181	—	—	232,353	—
	b)	3,563	3,031	—	—	41,965	45,052	—	—	46,758	—
Chile		...		...	...	3) 24,705	3) 16,971	3) 487	3) 902	19,004	1,504
Peru		...		—	—	1) 11,852	1) 10,688	—	—	12,445	—
Uruguay	a)	...		...	.	1) 126,226	1) 85,842	1) 0	1) 0	90,568	0
	b)	...	...	.	.	1) 12,286	1) 9,425	1) 0	1) 0	10,274	0
China		. .	.	—	—	2) 32,287	2) 25,329	—	—	31,350	—
India by sea 4)		3,150	3,675	273	375	66,553	52,920	6,380	6,433	55,923	6,784
» by land 4)		—	—	...	...	—	—	3) 15,432	3) 9,897	—	16,462
Iraq		...	...	...	...	1) 13,704	1) 7,970	1) 79	1) 15	11,338	35
Iran		...	...	...	...	1) 11,358	1) 11,352	1) 0	1) 0	19,837	0
Manchukuo		...	...	...	...	3) 5,187	3) 3,675	3) 1,153	3) 919	6,078	1,321
Palestine Br m t		..	..	..	.	3) 234	3) 119	3) 7	3) 18	205	20
Syria & Leb : Fr m t		1,144	302	31	33	8,157	3,984	851	220	4,930	223
Algeria		4,286	1,554	408	309	24,670	13,547	3,164	1,903	14,793	2,079
Egypt		...		...	. .	1) 4,564	1) 2,952	1) 35	1) 62	4,096	64
French Morocco		...	. .	...	...	3) 5,864	3) 1,444	3) 31	3) 20	3,739	57
Tunis		258	99	322	31	7,802	1 058	800	478	1,107	518
Un. of S Africa	a)	4 954	5 053		. .	245,144	211,356	1) 203	1) 97	213,150	97
	b)	425	527			8,497	5,988	1) 1,861	1) 1,836	6,512	2,174
Australia	a)	39,130	24,156	146	231	767,522	725,910	3,241	8,988	732,907	9,222
	b)	6,607	5,646	18	42	63,185	60,133	95	154	64,627	157
New Zealand	a)	3,195	3,106		. .	231 416	260,662	2) 99	2) 90	262,902	90
	b)	5,456	4 941			47,732	47,164	2) 4	2) 13	52,812	13
Importing Countries											
Germany	a)	51	18	14 681	18,146	284	386	159 064	172 903	395	182,850
	b)	11	11	2,818	4,094	212	1,140	35,168	31 899	1,146	35,991
Austria		7	11	1,340	1,744	154	229	18,197	27,631	251	23,671
Belgo-Luxemb. Econ Un	a)	2 888	5 031	9,617	13,662	92,617	65,645	259 959	212,806	68,859	220,794
	b)	1,903	2,804	322	507	25,814	24,482	6,543	4,901	26,506	5,437
Bulgaria		0	0	201	139	0	0	1,396	1,459	0	1 612
Denmark		62	22	269	364	441	359	5,472	4,709	392	4,921
Spain		—	—	—	—	—	—	—	—	—	—
Estonia		0	0	86	93	0	0	701	829	0	895
Finland		9	2	507	476	256	205	6,277	5,245	214	5,692
France		5 719	6 389	20 913	24,959	71,681	51,187	295,068	348,243	57,431	362,091
Greece		209	309	739	1,349	2,145	1,523	7,154	10,657	1,676	11,050
Italy	a)	0	0	9,096	3,766	0	212	69,953	36,778	212	39,256
	b)	2	0	456	514	1,312	26	5,919	8,020	42	8 871
Latvia		0	0	196	284	0	0	1,678	1,874	0	2,006
Lithuania		0	0	119	68	7	0	818	811	0	891
Norway		150	95	201	212	1,563	1,038	2,665	2,624	1,111	2,820
Netherlands	a)	223	450	397	899	4,905	3,102	5,655	6,594	3,499	6,975
	b)	26	44	591	461	928	1,160	6,398	4,740	1,235	5,110
Poland - Dantzig		0	11	2,890	2,017	192	168	47,545	40,197	168	44,406
Portugal		317	139	106	154	2,670	1,045	3,137	2,983	1,210	3,042
Romania					..	2) 939	2) 267	2) 1,349	2) 908	306	1,056
United Kingdom		19,687	28 980	43,010	42,942	285,888	300,833	804,410	845,930	321,201	879,321
Sweden		—	—	1,409	1,550	—	—	19,873	18,517	—	20,324
Switzerland		13	24	245	864	262	216	15,655	14,394	256	15,973
Czechoslovakia		95	62	3,155	3,816	465	1,003	40,424	40,457	1,074	43,222
Yugoslavia		198	403	320	814	1,217	4,656	7,352	8,408	4,958	9,509
U. S. S. R.	a)	...	...	. .	...	1) 0	1) 0	1) 45,671	1) 45,819	0	49,077
	b)	...	.	. .	..	1) 0	1) 0	1) 14,385	1) 11,058	0	14,667
Canada		710	82	1,153	2,185	7,216	7,456	24,436	21,861	8,543	22,520
United States		18	0	..	.	31	24	1) 336,416	1) 208,269	24	241,894
Japan		...	...	. .	...	2) 271	2) 883	2) 215,223	2) 232,090	1,102	261,981
Totals		**118,005**	**105,483**	**116,203**	**127,539**	**2,522,654**	**2,308,829**	**2,499,803**	**2,403,031**	**2,416,569**	**2,571,214**

a) = Wool, greasy. — b) Wool, scoured — 1) Up to 30 June — 2) Up to 31 May — 3) Up to 30 April. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Butter. — Thousand lb.

COUNTRIES	July				Seven months (January 1-July 31)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	575	567	0	0	3,657	3,666	7	7	7,802	13
Bulgaria	4	7	0	0	13	9	0	0	73	0
Denmark	33,462	30,389	9	172	203,188	191,468	9	179	322,328	185
Estonia	3,003	2,654	0	0	14,972	11,775	0	0	24,152	0
Finland	3,117	3,177	0	0	21,625	18,367	0	0	30,836	0
Hungary	800	520	0	0	7,266	4,048	0	0	10,401	0
Irish Free State	9,114	10,448	7	4	25 195	31,376	1,457	7	58,032	11
Latvia	4,916	4,255	0	0	22,628	20,499	0	0	38,118	0
Lithuania	5,117	5,002	0	0	16,647	16,416	0	0	32,252	0
Norway	112	0	0	0	357	362	0	0	423	0
Netherlands	12,959	14,529	0	2	73,848	79,170	18	35	132,686	71
Poland-Dantzig	3,373	4,259	0	0	9,491	12,132	0	0	24,046	0
Romania	...	...	...	...	1) 53	1) 88	1) 0	1) 0	218	0
Sweden	5,981	4,497	0	0	29,778	23,016	0	412	42,126	414
Yugoslavia	33	31	—	—	165	123	—	—	269	—
U S S R	...	...	...	...	1) 9,808	1) 8.098	1) 24	1) 295	51,097	15,679
Argentina	192	2,022	—	—	13,836	13,413	—	—	22,642	—
Chile	...	...	...	...	3) 7	3) 11	3) 0	3) 0	31	0
Syria & Leb : Fr. m t.	11	55	22	9	172	386	119	115	750	161
Turkey	...	...	—	—	1) 4	1) 11	—	—	33	—
Union of South Afr	...	...	...	...	1) 7,009	1) 7,584	1) 0	1) 0	9 273	0
Australia	5,600	6,464	0	2	100,529	112,721	0	4	185,672	4
New Zealand	23,043	28,221	—	—	201,533	184,841	—	—	313,168	—
Importing Countries										
Germany	0	0	19,427	12,209	0	0	96,477	87,255	0	166,245
Belgo Luxemb E. U.	4	7	4	97	26	40	2,890	7,169	68	8,139
Spain	—	—	—	—	—	—	—	—	—	—
France	774	2,022	159	134	4,023	6,149	877	3,589	12,679	4,251
Greece	—	—	115	117	—	—	432	492	—	780
Italy	97	90	55	44	789	653	4,673	313	1,107	864
Portugal	0	0	0	4	44	0	26	201	11	340
United Kingdom	613	542	101,891	104,528	7,408	5,697	645,366	653,992	9,237	1,095,624
Switzerland	0	0	18	20	4	2	5,022	1,486	7	3,223
Czechoslovakia	0	0	108	26	838	2	1,367	366	379	496
Canada	49	2,718	0	2	265	3,781	49	108	5,130	119
United States	57	62	154	309	525	516	9,744	4,989	825	9,872
Peru	...	...	...	...	1) 0	1) 18	1) 73	1) 170	26	467
Ceylon	—	—	46	37	—	—	432	412	—	805
China	—	—	...	...	—	—	2) 478	2) 423	—	939
India by sea 4)	37	7	60	64	209	126	547	571	218	944
» by land 4)	—	—	...	...	—	—	3) 3,247	3) 2,804	—	5,022
Netherlands Indies										
Java and Madura	—	—	...	...	—	—	1) 4,240	1) 4,711	—	9,196
Outer Provinces	—	—	...	...	—	—	1) 1,528	1) 1,596	—	3,078
Indo-China	...	...	...	...	1) 2	1) 2	1) 414	1) 311	4	917
Iraq	...	...	...	...	1) 7	1) 0	1) 13	1) 4	2	13
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 7	2	11
Japan	...	...	...	...	2) 13	2) 586	2) 1,164	2) 7	688	13
British Malaya	...	...	...	...	1) 298	1) 300	1) 2,549	1) 2,326	631	4,105
Manchukuo	—	—	...	...	—	—	3) 119	3) 40	—	187
Palestine: Br m. t.	—	—	...	...	—	—	3) 1,658	3) 1,638	—	5,494
Algeria	0	2	337	348	2	4	2,474	2,310	9	4,394
Egypt	...	...	...	...	1) 9	1) 35	1) 551	1) 582	42	1,316
French Morocco	—	—	...	...	—	—	3) 1,314	3) 1,501	—	4,017
Tunis	0	0	90	90	2	2	1,052	1,155	4	2,026
Totals	**113,043**	**122,547**	**122,502**	**118,218**	**776,244**	**757,493**	**790,409**	**781,582**	**1,337,497**	**1,349,435**

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1) Up to 30 June — 2) Up to 31 May. — 3) Up to 30 April — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cheese. — Thousand lb.

COUNTRIES	July				Seven months (January 1-July 31)				Twelve months (Jan. 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	1,012	461	172	183	6,016	4,813	1,294	1,204	8,620	1,878
Bulgaria	174	234	0	0	1,550	2,112	0	0	4,206	0
Denmark	1 810	1,713	0	2	11,865	12,785	15	11	21,008	22
Estonia	46	9	0	0	317	97	0	0	198	6
Finland	1,294	880	0	0	7,751	5,950	13	9	10,864	20
Italy	2,434	1,859	785	622	29,253	16,482	4,581	4,394	42,845	7,460
Latvia	24	7	0	0	110	51	0	0	119	0
Lithuania	4	2	0	0	353	454	0	0	972	2
Norway	359	134	35	9	2,348	1,850	179	117	2,381	269
Netherlands	12,322	11,539	42	66	76,827	68,811	432	494	125,311	869
Poland-Dantzig	381	18	13	20	1,076	66	126	139	441	223
Romania	...	...	...	...	1) 33	1) 26	1) 31	1) 20	128	55
Switzerland	3,609	3,858	286	247	20,675	25,754	2,143	1,735	40,737	3,505
Czechoslovakia	77	77	243	201	751	939	1,415	1,477	1,554	2,555
Yugoslavia	730	637	4	4	1,971	1,711	24	20	4,676	53
Canada	15,075	11,541	108	77	27,712	24,762	811	511	81,891	1,241
Australia	322	254	—	—	1,625	1,336	—	—	2,813	—
Turkey	...	...	—	—	1) 15	1) 49	—	—	90	—
Union of South Afr.	...	...	...	...	1) 1,437	1) 1,215	1) 130	1) 97	1,369	238
Australia	399	243	9	7	7,608	5,979	73	37	12,454	99
New Zealand	14,262	14,370	...	...	115,373	115,029	2) 2	2) 0	185,722	0
Importing Countries:										
Germany	2	18	6,332	4,769	126	181	40,737	35,056	262	61,507
Belgo-Luxemb. E. U.	31	33	4,830	4,859	216	183	27,869	28,003	366	50,834
Spain	—	—	—	—	—	—	—	—	—	—
France	1,779	1,488	2,299	2,531	14,793	13,563	16,793	18,512	23,345	32,465
Greece	55	37	55	31	527	282	549	262	705	370
Hungary	18	49	0	0	417	412	0	0	767	2
Irish Free State	176	174	2	2	677	516	24	68	1,814	88
Portugal	13	13	22	33	88	75	121	157	121	346
United Kingdom	459	467	33,607	23,354	3,250	3,424	181,033	170,779	6,012	300,628
Sweden	—	—	86	161	—	—	1,144	1,828	—	3,530
U. S. S. R	...	...	...	...	1) 2	1) 24	1) 445	1) 388	90	756
United States	137	88	3,490	5,463	666	675	33,687	29,815	1,135	59,851
Chile	...	...	...	...	3) 7	3) 15	3) 15	3) 13	26	44
Peru	—	—	...	...	—	—	1) 390	1) 311	—	648
Ceylon	—	—	15	15	—	—	115	90	—	220
India: by sea 5)	0	0	79	66	2	2	739	545	2	1,184
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 893	1) 723	—	1,733
Indo-China	...	...	...	...	1) 0	1) 0	1) 340	1) 322	2	602
Iraq	...	...	...	...	1) 13	1) 4	1) 20	1) 24	7	62
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 2	0	2
Japan	—	—	...	...	—	—	4) 35	4) 40	—	168
British Malaya	...	...	...	...	1) 9	1) 7	1) 220	1) 148	18	337
Palestine: Br. m. t.	...	...	...	...	3) 15	3) 55	3) 750	3) 470	57	1,845
Syria & Leb : Fr. m. t.	44	93	29	51	315	225	492	611	470	957
Algeria	4	2	941	739	35	53	6,579	6,521	88	11,025
Egypt	...	...	...	...	1) 26	1) 13	1) 3,552	1) 3,521	44	7,771
French Morocco	—	—	...	...	—	—	3) 1,294	3) 1,268	—	3,673
Tunis	9	7	7	229	33	88	1,479	1,554	104	2,915
Totals	**57,061**	**50,305**	**53,441**	**43,741**	**335,883**	**310,068**	**330,584**	**311,296**	**583,834**	**562,058**

1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) Up to 31 March. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cacao. — Thousand lb.

COUNTRIES	July				Ten months (October 1-July 31)				Twelve months (Oct 1-Sept. 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Grenada	...	...	—	—	1) 7,231	1) 7,848	—	—	8,228	—
Haiti	64	31	—	—	2,842	3,512	—	—	3,618	—
Santo Domingo . .	...	...	—	—	1) 33,466	1) 37,801	—	—	40,259	—
Brazil	...	...	—	—	2) 116,508	2) 156,956	—	—	279,988	—
Equador	...	...	—	—	2) 23,687	2) 33,054	—	—	45,096	—
Trinidad	1,448	1,583	—	—	26,107	26,107	—	—	27,805	—
Venezuela	...	...	—	—	3) 16,755	3) 16,852	—	—	29,198	—
Ceylon	567	381	—	—	7,842	5,251	—	—	6,102	—
Netherlands Indies: Java and Madura	...	...	—	—	1) 1,717	1) 2,522	—	—	3,995	—
Cameroon: Fr. m. t.	950	791	—	—	52,900	48,762	—	—	52,927	—
Ivory Coast	1,936	4,295	—	—	108,095	105,104	—	—	108,840	—
Gold Coast	32,243	31,246	—	—	643,670	570,968	—	—	639,440	—
Madagascar	...	...	—	—	2) 434	2) 642	—	—	829	—
Nigeria and Cameroon. Brit. m. t. .	3,347	15,335	—	—	203,781	189,047	—	—	201,931	—
Sao Thomé and Principe Islands . .	1,105	899	—	—	16,222	29,328	—	—	31,780	—
Togo Fr m. t. . .	445	635	—	—	18,223	18,283	—	—	21,182	—
Importing Countries										
Germany	309	0	13,029	12,004	2,705	7	133,387	145,294	7	172,395
Austria	—	—	851	937	—	—	11,768	11,021	—	13,038
Belgo Luxemb. E. U.	2	0	966	1,329	134	11	19,240	19,324	123	25,018
Bulgaria	—	—	77	134	—	—	1,182	1,484	—	1,559
Denmark	—	—	492	1,254	—	—	8,234	9,156	—	9,914
Spain	—	—	—	—	—	—	—	—	—	—
Estonia . .	—	—	62	15	—	—	562	723	—	844
Finland	—	—	20	7	—	—	245	243	—	304
France	0	0	5,595	8,212	522	9	79,611	86,481	9	104,114
Greece	—	—	157	375	—	—	2,762	3,049	—	3,497
Hungary	—	—	399	593	—	—	6,918	8,338	—	9,961
Irish Free State .	—	—	24	121	—	—	3,051	3,179	—	3,349
Italy	—	—	2,024	617	—	—	13,587	18,799	—	21,050
Latvia	—	—	64	101	—	—	970	1,025	—	1,199
Lithuania	—	—	24	106	—	—	761	952	—	1,047
Norway	—	—	809	205	—	—	6,612	4,235	—	5,514
Netherlands . . .	375	280	8,781	7,487	5,701	4,211	115,730	131,751	5,181	152,545
Poland-Dantzig . .	—	—	728	798	—	—	12,408	11,748	—	14,035
Portugal	0	4	37	119	4	62	842	992	66	1,091
Romania	—	—	...	...	—	—	2) 2,676	2) 2,875	—	3,878
United Kingdom .	395	1,814	3,155	5,276	6,376	6,887	225,377	267,265	8 494	276,108
Sweden	—	—	522	968	—	—	11,255	10,031	—	12,178
Switzerland	13	0	723	818	51	53	15,322	16,460	68	17,183
Czechoslovakia . . .	—	—	917	1,316	—	—	24,870	23,878	—	27,055
Yugoslavia	—	—	40	212	—	—	2,033	1,711	—	1,845
U S S R . . .	—	—	...	...	—	—	1) 14,050	1) 13,592	—	16,048
Canada	—	—	1,016	1,909	—	—	30,669	23,294	—	27,847
United States . . .	—	—	40,611	34,877	—	—	596,974	488,445	—	580,159
Chile	—	—	...	...	—	—	3) 1,107	3) 1,389	—	1,784
Colombia . .	—	—	...	...	—	—	2) 4,872	2) 4,597	—	7,796
Peru	...	...	...	...	1) 9	1) 26	1) 143	1) 586	26	703
Uruguay	—	—	...	...	—	—	1) 505	1) 688	—	1 027
Iran	—	—	...	...	—	—	2) 9	2) 26	—	20
Japan	—	—	...	...	—	—	4) 2,665	4) 2,150	—	4,248
British Malaya . . .	...	...	...	...	1) 128	1) 121	1) 126	1) 90	141	108
Palestine: Br. m. t. .	—	—	...	...	—	—	3) 450	3) 478	—	785
Syria & Leb.: Fr. m. t.	—	—	0	0	—	—	7	13	—	13
Algeria	0	0	2	4	108	71	406	670	71	686
Egypt	—	—	...	...	—	—	1) 368	1) 443	—	496
French Morocco . .	—	—	...	...	—	—	3) 86	3) 62	—	95
Tunis	—	—	0	0	—	—	18	35	—	35
Union of South Africa	—	—	...	...	—	—	1) 2,011	1) 2,762	—	3,322
Australia	0	13	181	351	37	71	14,030	12,106	104	12,403
New Zealand . . .	—	—	...	...	—	—	2) 2,727	2) 2,780	—	3,359
Totals . . .	43,199	57,307	81,306	80,145	1,295,255	1,263,566	1,370,626	1,334,220	1,515,508	1,539,649

1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) Up to 31 March.

COUNTRIES	July				Twelve months (July 1-June 30)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Tea. — Thousand lb.										
Exporting Countries										
Ceylon	20,003	19,055	0	0	202,290	223,530	0	0	—	—
China	...	...	...	...	1) 88,972	1) 71,234	1) 880	1) 657	—	—
Chosen	...	...	...	...	154	223	22	0	—	—
Taiwan	...	...	...	...	1) 20,461	1) 18,411	1) 82	1) 66	—	—
India by sea 3)	34,068	30,856	282	218	299,691	313,419	4,021	5,199	—	—
» by land 3)	...	...	...	...	2) 14,498	2) 14,363	2) 1,764	2) 2,383	—	—
Netherlands Indies:										
Java and Madura	...	...	...	...	116,709	118,230	661	955	—	—
Outer Provinces	...	...	—	—	28,479	28,854	—	—	—	—
Indo-China	...	...	...	...	3,364	2,806	1,493	1,810	—	—
Japan	...	...	...	...	1) 36,032	1) 30,223	1) 1,012	1) 437	—	—
Importing Countries										
Germany	29	0	869	765	150	0	10,809	10,152	—	—
Austria	—	—	35	44	—	—	794	785	—	—
Belgo-Luxemb E U.	0	0	44	66	2	2	668	564	—	—
Bulgaria	—	—	4	7	—	—	84	66	—	—
Denmark	—	—	68	99	—	—	1,252	1,120	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	9	4	—	—	99	95	—	—
Finland	—	—	18	11	—	—	293	276	—	—
France	2	0	295	214	15	18	3,280	2,855	—	—
Greece	—	—	24	214	—	—	395	445	—	—
Hungary	—	—	18	15	—	—	511	430	—	—
Irish Free State	201	2	1,933	1,596	342	24	22,869	22,434	—	—
Italy	—	—	18	4	—	—	225	196	—	—
Latvia	—	—	4	4	—	—	73	71	—	—
Lithuania	—	—	0	0	—	—	82	93	—	—
Norway	—	—	24	15	—	—	362	362	—	—
Netherlands	22	11	2,235	2,000	112	112	27,322	28,980	—	—
Poland-Dantzig	0	0	267	163	2	2	4,081	3,461	—	—
Portugal	—	—	26	42	—	—	397	443	—	—
Romania	—	—	...	...	—	—	1) 688	1) 723	—	—
United Kingdom	7,117	6,431	28,493	31,043	70,804	72,067	439,361	486,313	—	—
Sweden	—	—	51	51	—	—	990	1,016	—	—
Switzerland	2	2	90	104	31	26	1,786	1,819	—	—
Czechoslovakia	—	—	49	40	—	—	1,226	1,166	—	—
Yugoslavia	—	—	24	26	—	—	401	381	—	—
U. S S R	...	...	...	...	10,507	17,970	32,159	34,882	—	—
Canada	—	—	2,945	2,266	—	—	38,923	44,214	—	—
United States	—	—	7,044	5,997	—	—	92,273	83,917	—	—
Chile	—	—	...	...	—	—	2) 4,713	2) 3,657	—	—
Peru	—	—	...	...	—	—	1,191	1,834	—	—
Iraq	...	...	...	...	9	57	7,015	5,461	—	—
Iran	...	...	...	...	1) 0	1) 0	1) 17,893	1) 12,086	—	—
British Malaya	...	...	...	...	1,168	1,142	5,251	4,822	—	—
Manchukuo	—	—	...	...	—	—	2) 8,697	2) 7,147	—	—
Palestine: Br m t	...	...	...	...	2) 0	2) 0	2) 653	2) 487	—	—
Syria & Leb.: Fr. m. t.	0	0	11	13	0	11	474	298	—	—
Turkey	—	—	...	...	—	—	2,504	1,587	—	—
Algeria	0	0	432	635	4	9	3,693	2,518	—	—
Egypt	—	—	...	...	—	—	16,987	13,980	—	—
French Morocco	...	...	...	...	2) 348	2) 216	2) 18,448	2) 15,081	—	—
Tunis	—	—	428	267	—	—	3,411	6,321	—	—
Union of South Afr.	...	...	...	...	668	320	15,448	13,702	—	—
Australia	18	51	3,530	4,389	608	635	48,797	41,557	—	—
New Zealand	...	...	...	...	1) 139	1) 121	1) 10,223	1) 9,650	—	—
Totals	**61,462**	**56,408**	**49,270**	**50,312**	**895,559**	**914,025**	**857,426**	**878,954**	—	—

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1) Up to 31 May. — 2) Up to 30 April. — 3) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Coffee. — Thousand lb.

COUNTRIES	July				Twelve months (July 1-June 30)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Costa Rica	...	...	—	—	56,170	46,875	—	—	—	—
Cuba	...	...	—	—	3) 8,620	3) 3,913	—	—	—	—
Guadalupe	...	...	—	—	952	1,477	—	—	—	—
Guatemala	...	...	—	—	108,677	118,353	—	—	—	—
Haiti	2,813	3,232	—	—	56,412	76,366	—	—	—	—
Nicaragua	...	...	—	—	2) 23,788	2) 22,247	—	—	—	—
Santo Domingo	1,228	1,166	—	—	27,238	28,246	—	—	—	—
Salvador	...	...	—	—	138,797	104,497	—	—	—	—
Brazil	95,650	140,657	—	—	1,753,477	2,059,770	—	—	—	—
Colombia	48,420	50,120	—	—	534,138	499,203	—	—	—	—
Dutch Guiana	...	...	—	—	1) 6,638	1) 10,196	—	—	—	—
Peru	...	...	...	...	7,152	5,668	7	31	—	—
Aden: by sea	423	708	—	—	9,162	12,240	—	—	—	—
India by sea 4)	40	584	0	0	18,193	25,761	128	0	—	—
Netherlands Indies:										
Java and Madura	...	...	—	—	75,855	54,386	—	—	—	—
Outer Provinces	...	...	—	—	152,426	119,121	—	—	—	—
Indo China	...	...	...	...	937	1,691	157	190	—	—
Ivory Coast	..	...	—	—	1) 13,552	1) 12,787	—	—	—	—
Kenya	913	1,812	—	—	39,143	45,914	—	—	—	—
Madagascar	...	...	—	—	61,178	42 300	—	—	—	—
Importing Countries										
Germany	0	0	30,521	32,653	0	0	380,579	329,173	—	—
Austria	0	0	767	946	0	0	11,513	11,464	—	—
Belgo-Luxemb. E. U.	218	110	8,360	10,091	3,538	728	113,902	108,968	—	—
Bulgaria	—	—	79	108	—	—	1,217	1,100	—	—
Denmark	—	—	3,183	5,622	—	—	62,673	56,467	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	26	46	—	—	223	192	—	—
Finland	—	—	3,768	3,697	—	—	47,803	42,428	—	—
France	4	4	40,201	31 632	37	4	413,258	426,029	—	—
Greece	—	—	1,005	1,334	—	—	14,163	13,314	—	—
Hungary	—	—	375	280	—	—	4,319	4,398	—	—
Irish Free State	0	0	53	75	0	0	547	595	—	—
Italy	0	2	6,693	3,671	7	15	81,183	79,166	—	—
Latvia	—	—	49	11	—	—	342	249	—	—
Lithuania	—	—	31	51	—	—	359	412	—	—
Norway	—	—	1,788	2,542	—	—	38,784	41,515	—	—
Netherlands	359	20	4 736	1,272	2,515	6,839	64,884	91,580	—	—
Poland-Dantzig	2	0	1,023	1,415	15	9	12,553	11,718	—	—
Portugal	205	377	739	1,885	2,231	3.430	14,581	13,336	—	—
Romania	—	—	..	..	—	—	1) 6,815	1) 7,765	—	—
United Kingdom	366	1,501	1,224	754	15,126	23,473	45,435	52,270	—	—
Sweden	—	—	8,303	8.457	—	—	105,547	105,842	—	—
Switzerland	0	0	1,982	3,309	4	2	34,300	38,281	—	—
Czechoslovakia	—	—	1,735	981	—	—	24,877	24,714	—	—
Yugoslavia	—	—	1,065	732	—	—	14,599	15.210	—	—
U S S R	—	—	...	..	—	—	710	1,146	—	—
Canada	35	29	3,305	3,375	276	214	38,951	39,196	—	—
United States	335	650	114,127	118,931	11,213	8,792	1,760,838	1,853,163	—	—
Chile	—	—	...	. .	—	—	2) 5,864	2) 6,651	—	—
Uruguay	—	—	...	...	—	—	4,747	5,044	—	—
Ceylon	0	0	201	373	2	2	3,243	2,738	—	—
Iraq	...	...	...	...	0	0	1,918	1,325	—	—
Iran	...	...	...	...	1) 0	1) 0	1) 170	1) 168	—	—
Japan	—	—	...	...	—	—	1) 11,111	1) 10,307	—	—
British Malaya	...	...	...	...	5,919	5,417	18,023	16,118	—	—
Manchukuo	—	—	...	...	—	—	2) 421	2) 289	—	—
Palestine: Br m t	...	...	...	..	2) 0	2) 0	2) 2,584	2) 3,477	—	—
Syria & Leb.: Fr.m.t.	0	0	216	172	0	4	2,566	2,390	—	—
Turkey	—	—	...	...	—	—	11,105	10,620	—	—
Algeria	0	0	3,516	2,533	4	4	30,688	32,452	—	—
Egypt	—	—	...	...	—	—	17,291	17,324	—	—
French Morocco	—	—	...	...	—	—	2) 4,663	2) 5,201	—	—
Tunis	0	0	267	267	0	2	3,104	3,342	—	—
Union of South Afr.	...	...	...	...	13	13	31,952	31,654	—	—
Australia	7	2	317	467	75	24	4.123	4,619	—	—
New Zealand	...	...	...	...	1) 0	1) 0	1) 483	1) 377	—	—
Totals	**151,018**	**200,884**	**239,655**	**237,682**	**3,133,480**	**3,389,983**	**3,449,303**	**3,524,008**	—	—

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1) Up to 31 May. — 2) Up to 30 April — 3) Up to 31 March. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

STOCKS

Commercial cereals in store in Canada and the United States.

SPECIFICATION	September 1937	August 1937	July 1937	September 1936	September 1935
	Friday or Saturday nearest 1st of month				
	1,000 centals				
WHEAT					
Canadian in Canada	28,330	17,504	22,618	76,397	105,173
U. S. in Canada	869	74	35	0	0
U. S. in the United States	82,759	53,600	9,718	48,629	37,497
Canadian in the United States	1,528	2,467	3,187	10,985	11,143
Of other origin in the United States	0	0	0	0	3
Total	*113,486*	*73,645*	*35,558*	*136,011*	*153,816*
RYE					
Canadian in Canada	594	122	172	1,487	1,833
U. S. in Canada	504	83	47	0	0
U. S. in the United States	2,998	665	787	3,737	3,954
Canadian in the United States	0	0	0	314	15
Of other origin in the United States	0	0	0	0	1,417
Total	*4,096*	*870*	*1,006*	*5,538*	*7 219*
BARLEY					
Canadian in Canada	3,915	1,346	1,959	5,508	1,708
U. S in Canada	153	0	0	0	0
U. S in the United States	5,584	2,509	2,260	7,365	4,145
Canadian in the United States	123	231	170	322	108
Of other origin the United States	0	0	0	0	0
Total	*9,775*	*4,086*	*4,389*	*13,195*	*5,961*
OATS					
Canadian in Canada	967	983	1,303	3,734	1,958
U S. in Canada	135	0	0	51	0
U S in the United States	7,101	1,075	634	16,596	8,193
Canadian in the United States	0	0	0	0	0
Of other origin in the United States	0	0	0	0	0
Total	*8,203*	*2,058*	*1,937*	*20,381*	*10 151*
MAIZE					
U. S. in Canada	1	1	1	92	100
Of other origin in Canada	2,395	2,290	1,516	203	1,236
U. S in the United States	3,015	4,158	3,508	2,541	3,167
Of other origin in the United States	0	1,337	75	0	956
Total	*5,411*	*7,786*	*5,100*	*2,836*	*5,459*

Quantities of cereals on ocean passage with first destination Europe.

PRODUCTS	September 1937	August 1937	July 1937	September 1936	September 1935
	Saturday nearest 1st of month				
	1,000 centals				
Wheat (and flour in terms of grain)	12,029	15,336	20,501	14,232	11,136
Rye	389	58	427	274	202
Barley	2,796	1,292	1,188	2,684	2,380
Oats	410	611	1,014	278	710
Maize	20,736	17,861	14,568	14,482	16,776

AUTHORITY: *Broomhall's Corn Trade News*

Cereals in commercial elevators and mills in Germany 1).

PRODUCTS	Last day of month				
	August 1937	July 1937	June 1937	August 1936	August 1935
	1,000 centals				
WHEAT:					
Grain	17,481	9,513	10,446	13,790	27,617
Flour for bread	1,351	968	1,671	1,967	3,221
TOTAL 2)	*19,357*	*10,857*	*12,767*	*16,522*	*32,090*
RYE:					
Grain	18,058	10,805	11,356	12,042	25,578
Flour for bread	1,340	1,098	1,232	1,041	1,956
TOTAL 2)	*20,029*	*12,420*	*13,168*	*13,572*	*28,453*
BARLEY	5,287	2,601	1,012	3,212	4,180
OATS	2,646	1,814	2,130	2,703	3,206

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries) — 2) Including flour in terms of grain on the basis of the coefficient 1,000 centals of wheat flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	September 1937	August 1937	July 1937	September 1936	September 1935
	1,000 centals				
WHEAT:					
Grain	6,000	6,288	5,376	4,056	3,888
Flour as grain	720	912	1,056	744	600
TOTAL	*6,720*	*7,200*	*6,432*	*4,800*	*4,488*
BARLEY	840	760	920	980	780
OATS	160	224	208	176	272
MAIZE	2,544	2,256	2,616	2,256	2,832

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News.*

Commercial cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	September 1937	August 1937	July 1937	September 1936	September 1935
	1,000 centals				
WHEAT:					
Antwerp	1,222	1,528	1,313	583	420
Rotterdam	585	1,127	1,666	508	179
Amsterdam	7	10	14	23	12
RYE:					
Antwerp	12	13	27	54	38
Rotterdam	22	18	61	42	119
Amsterdam	0	0	0	0	0
BARLEY:					
Antwerp	137	81	227	43	213
Rotterdam	17	11	11	4	30
Amsterdam	0	0	0	0	5
OATS:					
Antwerp	29	98	27	11	90
Rotterdam	0	4	0	9	0
Amsterdam	12	15	17	30	32
MAIZE:					
Antwerp	9	8	143	52	44
Rotterdam	17	44	132	15	66
Amsterdam	46	69	51	7	15

1) Imported cereals. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	August 1937	July 1937	June 1937	August 1936	August 1935
	1,000 centals				
In consuming establishments	4,689	6,295	7,567	3,670	3,146
In public storage and at compresses	17,116	13,713	15,100	21,182	28,784
TOTAL	*21,805*	*20,008*	*22,667*	*24,852*	*31.930*

Cotton stocks at Bombay and Alexandria.

Location	Thursday nearest 1st of month				
	September 1937	August 1937	July 1937	September 1936	September 1935
	1,000 centals				
Bombay 1)	2,660	3,240	3,940	2,760	2,152
Alexandria 2)	358	460	763	258	439

1) Stocks held by exporters, dealers and millers. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included.
AUTHORITIES: *East Indian Cotton Assn.* and *Commission de la Bourse de Minet-el-Bassal*

Cotton stocks in Europe.

Location, Description	Thursday or Friday nearest 1st of month				
	September 1937	August 1937	July 1937	September 1936	September 1935
	1,000 centals				
Great Britain:					
American	1,122	1,375	1,626	1,123	704
Argentine, Brazilian	609	646	746	841	179
Peruvian	292	278	221	229	348
East Indian	341	403	165	323	239
Egyptian, Sudanese	584	747	765	863	867
W. Indian, W. and E. African, and other	314	332	302	156	126
TOTAL	*3,262*	*3,781*	*3,825*	*3,535*	*2,463*
Bremen:					
American	287	495	563	442	539
Other	242	258	226	282	433
TOTAL	*529*	*753*	*789*	*724*	*972*
Le Havre:					
American	445	540	691	356	233
French colonial	34	27	23	26	18
Other	132	142	126	184	87
TOTAL	*611*	*709*	*840*	*566*	*338*
Total Continent 1):					
American	773	1,164	1,378	1,037	1,147
Argentine, Brazilian, Peruvian	243	168	137	393	282
East Indian	96	97	114	221	217
Egyptian	55	70	79	109	173
W. Indian, W. and E. African, and other	135	166	152	132	196
TOTAL	*1,302*	*1,665*	*1,860*	*1,892*	*2,015*

1) Including Bremen and Le Havre.
AUTHORITIES: *Liverpool Cotton Assn.* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

PRICES

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated The monthly averages are based on the weekly quotations, and the yearly averages on the monthly)

Description	17 Sept. 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average				
						August 1937	Sept. 1936	Sept 1935	Commercial Season 1)	
									1936 37	1935 36
Wheat.										
Budapest (a) Tisza wheat, 78 kg p hl (pengo p quintal)	20 75	20 68	20 20	20 27	6) 20 45	20 54	15 98	15 85	19 04	16 78
Braila Good quality (lei p quintal)	520	515	490	470	470	480	457	405	* 486	* 442
Winnipeg No 1 Manitoba (cents p 60 lb)	134	131 5/8	129 7/8	131 1/4	128 1/8	132 1/8	103 7/8	90 1/2	122 1/2	85
Chicago No 2 Hard Winter (cents p 60 lb)	111	112 3/4	n 112 3/8	113 1/8	113 1/4	116 1/4	120	116 1/8	130	109 3/4
Minneapolis (cents p 60 lb)										
No 1 Northern	118 5/8	121 1/4	120 1/4	121 1/4	118 3/4	124 7/8	134 1/2	129 1/8	141	119 1/2
No 2 Amber Durum		107 1/4	107 5/8	110 1/2	108	110 3/4	136 3/8	108 1/2	138 1/8	111 7/8
New York No 2 Hard Winter (cents p 60 lb)	126 3/8	128 3/8	127 1/4	128 1/2	125 1/2	130 3/4	128 3/4	127 1/8	142 3/8	124 1/4
Buenos Aires (a) Barletta 80 kg p hectol (paper pesos p quintal) 2)	14 60	14 45	14 10	13 90	13 95	13 99	11 06	8 64	12 28	9 53
Karachi White Karachi 2 / barley 1 1/2 impurities (rupees p 656 lb)	30-11-0	31-9 0	30-13-0	30-0-0	30-7-0	30-8-0	28 15-0	23-1-6	31-4-11	24-7-6
Berlin Home grown (free at Brandenburg stations Rm p quintal) 3)	7) 20 10	7) 20 10	7) 20 10	7) 20 10	7) 20 10	) 20 10	7) 19 60	7) 19 60	20 52	20 53
Hamburg (c i f Rm p quintal)										
No 1 Manitoba	14 22	14 44	14 19	13 92	14 54	14 39	11 34	9 86	13 32	9 51
Barusso 80 kg p hl	13 34	13 41	13 24	13 28	8) 13 36	13 49	10 67	8 00	11 90	8 74
Antwerp (francs p quintal)										
Home grown	132 00	130 00	131 00	137 00	139 00	140 75	7) 116 00	86 50	135 40	100 90
No 1 Manitoba (Atlantic) (in bond)	167 00	164 00	155 00	160 00	164 00	165 75	127 10	112 25	154 50	110 80
Barusso (in bond)	9) 161 00	9) 157 00	9) 152 00	9) 156 00	9) 159 00	9) 159 60	127 75	92 25	141 05	103 10
Paris Home grown (delivery regional depots 76 kg p hl frs p quintal) 4)	4) 181 00	4) 181 00	4) 181 00	4) 157 00	4) 157 00	4) 157 00	144 00	87 65	149 35	91 30
London (Mark Lane) Home grown (sh p 504 lb on the farm)	7) 40/6	7) 39 -	7) 38 -	7) 37/-	) 38/-	40/1 1/2	34/0 3/4	24/3	40 1 3/4	27/5 1/4
Liverpool and London (c i f parcels shipping current month sh p 480 lb)										
Danubian (on sample)	37/10 1/2	38 -	n 37/10 1/2	38 3	38/6	39 9	33/1 1/4	* 24/5 1/4	* 38/1 1/4	* 25 5
Russian (on sample)	42 3	42 3	41/6	41 6	42 -	43 1 3/4	n q	29/4 1/2	n q	* 29 -
No 1 Northern Manitoba (Atlantic)	10)50 4 1/2	10)50/7 1/2	10)48 9	47 10 1/2	47 6	48/5 3/4	37 11 1/2	34/0 3/4	* 46 0 3/4	32/9
No 1 Northern Manitoba (Pacific)	n q	n q	n q	n q	n q	n q	38 1	33/11 1/2	* 45 9 3/4	32/5 1/4
No 3 Northern Manitoba (Pacific)	10)11) 46/9	10)11) 47/-	10)11) 45/4 1/2	8)11) 44/4 1/2	11)44 7 1/2	11)45/7 3/4	36/8 1/2	31/4 3/4	44/1	30/5 1/4
No. 2 Hard Winter	12)43/7 1/2	12)44/-	12)42/9	12)42/6	12)42/10 1/2	12)43/10 3/4	n q	n q	n q	n q
Rosafe 63 1/2 lb p bush (afloat)	13)40/9	13)40/6	13)40/1 1/2	13)40 -	13)40/4 1/2	13)40/10	13)34 1	29 -	* 39/3 3/4	* 28/9
White Karachi choice	42/6	43/3	42/6	8) 42-/	40 3	41 6 3/4	38 3	* 30 9	42 5 3/4	* 31/7 1/2
West Australian (cargoes)	14)44 9	14)43/6	14)43/3	14)42 6	44 -	43 3	39 5 1/4	* 31/-	43/2 1/2	* 30/2 1/2
New South Wales (cargoes)	14)44 9	14)43/6	14)43/3	14)42 6	44 -	43/3	38 7 3/4	29/3	43/0 1/2	* 29/9
Milan (b) Home grown soft Buonomercantile 78 kg p hl (lire p q) 5)	138 00	138 00	138 00	138 00	138 00	138 00	123 00	109 00	125 30	114 20
Rye.										
Berlin Home grown (free at Brandenburg stations Rm p quintal) 3)	18 40	18 40	18 40	18 40	18 40	18 40	15 90	15 90	16 82	16 68
Hamburg Plata 72 73 kg p hl (c i f Rm p quintal)	n q	n q	n q	n q	n q	n q	6 67	4 91	10 30	5 27
Budapest Pest rye (pengo p quintal)	19 15	19 25	19 02	19 20	6) 19 18	19 18	12 50	14 00	17 17	14 44
Warsaw Good quality (zloty p quintal)	24 25	24 50	24 75	24 75	24 75	24 06	15 56	12 87	21 58	13 26
Winnipeg No 2 (cents p 56 lb)	89	89 1/2	86 7/8	85 1/4	83	87	68 1/8	40 5/8	98 3/4	43 1/4
Minneapolis No 2 (cents p 56 lb)	78	77 1/2	77 1/8	75 1/8	* 73 3/4	78	84 7/8	47 1/4	99 7/8	53 1/8
Groningen (c) Home grown (fl p quintal)	7 65	7 07	7 00	7 00	7 12	15)* 7 03	7 61	6 63	* 8 12	* 7 08

* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — a) Thursday prices — b) Saturday prices — c) Prices on preceding Tuesday

1) August July — 2) As from February 1937 Nº 2 Hard quality basis 80 kg p hl — 3) Fixed producers prices for the *price region* of Berlin See *Govt Measures* No 2, p 57 and *Crop Report* Aug 1936 p 609 and July 1937 p 571 — 4) During August 1935 spot quotations in the free market Sept 1935 Aug 1936 prices in the regulated market delivery same month subsequently, fixed producers' prices (see note in *Crop Report* Sept 1936, p 691 and, for 1937 crop, this *Crop Report* p 750) — 5) Commencing Aug 1936 prices free at mills in Milan see also *Crop Report*, June 1937, p 474 — 6) Quotation on 19 August — 7) New crop — 8) Shipping Sept. — 9) Bahia quality — 10) Shipping October — 11) Nº 3 Northern Manitoba Atlantic — 12) Gulf shipment — 13) New crop shipping January February — 14) Afloat - 15) Quotation on 10 August (revised) 7.00

Description	17 Sept. 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average August 1937	Average Sept. 1936	Average Sept. 1935	Commercial Season 1) 1936-37	Commercial Season 1) 1935-36
Barley.										
Warsaw: Malting, good quality (zloty p. quintal)	25.50	n. q.	n. q.	n. q.	n. q.	n. q.	21.69	6) 15.81	* 25.12	* 15.97
Braila: Average quality (lei p. quintal).	347	338	325	325	330	336	240	245	* 321	242
Prague: Malting, good quality; 68 kg. hl. (crs. p. quintal) 2)	6) 131.00	6) 131.00	6) 131.00	6) 130.00	6) 130.00	6) 130.00	126.50	126.50	* 135.05	* 131.70
Winnipeg: No. 4 Western (cents p. 48 lb.)	58¾	56	54⅝	53¾	52⅞	55⅞	58	33½	66¾	34¾
Chicago. Feeding (on sample; cents p. 48 lb.)	66	60	65	52	49	50¾	69¾	45½	74¼	45⅛
Minneapolis: No. 2 Feeding (c. p. 48 lb.) 3)	53½	54½	53½	54½	52½	53½	77¼	40½	77½	39⅜
Berlin. Home grown fodder (free at Brandenburg stations; Rm. p. quint.) 4)	16.70	16.70	16.70	16.50	16.50	16.50	16.20	16.20	16.94	16.98
Antwerp: (in bond; francs per quintal):										
Danubian	105.00	105.00	103.00	103.00	108.00	107.75	92.60	72.25	107.75	74.10
No. 2 Federal	103.50	102.50	99.00	97.00	96.50	99.10	n. q.	n. q.	n. q.	n. q.
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	6) 55/-	6) 55/-	6) 55/-	6) 62/6	6) 62/6	6)* 62/6	6)* 41/7½	43/-	* 41/2	38/3
Liverpool and London (c.i.f., parcels, shipping current month; sh. p. 400 lb.):										
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19/6	n. q.	* 23/5	n. q.
Russian (Azoff, Black Sea)	26/-	25/6	24/6	22/6	23/-	24/2¼	n. q.	15/4½	n. q.	* 14/10
Canadian No. 3 Western	27/-	26/9	26/3	7) 24/-	7) 24/4½	26/2½	24/4½	16/10¾	* 27/9	18/0½
Californian malting (sh. p. 448 lb.)	38/6	38/-	35/6	7) 35/6	36/6	37/7½	39/3	* 21/-	* 40/6	24/8¾
Plata (64-65 kg. p. hl.)	8) 25/3	8) 25/3	8) 25/3	8) 25/3	8) 25/6	8) 25/6¼	19/5	15/10	25/0¾	15/11½
Calcutta (f. a. q.)	n. q.	n. q.	n. q.	n. q.	n. q.	* 32/4½	n. q.	n. q.	* 32/-	n. q.
Karachi (f. a. q.)	n. q.	n. q.	n. q.	n. q.	n. q.	* 32/3	n. q.	n. q.	* 32/1¼	n. q.
Persian (Iraquian)	6) 26/-	25/-	n. q.	n. q.	6) 22/-	6)* 24/1	9) 19/2¼	15/4	23/11	15/4¼
Groningen a) Home-grown, winter (fl. p. q.)	7.05	7.20	7.17	7.20	7.22	7.27	* 5.56	4.58	7.68	4.91
Oats.										
Braila Good quality (lei p. quintal).	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 218	272	* 274	* 294
Winnipeg. No. 2 White (cents per 34 lb.)	52½	51⅛	49	50¼	48¾	51	45	36¼	52⅞	34¾
Chicago No. 2 White (cents per 32 lb.)	33½	33¾	31¾	31¼	32	31½	45⅞	32⅞	49¾	32½
Buenos Aires b) Current quality (paper pesos p. quintal)	6.15	6.05	5.80	5.65	5.95	6.04	5.85	7.17	6.25	* 6.38
Berlin Home grown (free at Brandenburg stations, Rm. p. quint.) 3)	6) 16.10	6) 16.10	6) 16.10	6) 15.80	6) 15.80	6) 15.80	6) 15.80	6) 15.80	16.77	16.79
Paris Home grown, black and other (delivery regional depots, frs. p. quintal)	132.90	132.60	127.00	127.25	124.25	121.50	95.10	48.95	115.80	66.40
London (Mark Lane). Home-grown white (sh. p. 336 lb., on farm)	6) 26/-	6) 26/-	6) 25/6	6) 26/6	6) 26/6	6) 26/10½	18/11¼	19/1½	23/9¾	18/7½
Liverpool and London (c.i.f. parcels, shipping current month, sh. p. 320 lb.):										
Canadian, No. 2 Western (Atlantic)	10) 28/1½	10) 27/-	10) 26/4½	n. q.	n. q.	* 26/5¼	22/-	10)* 18/4	23/4½	18/7½
Plata (f. a. q.)	8) 16/10½	8) 16/7½	8) 16/3	8) 16/3	8) 16/3	8) 16/4¾	14/9	16/4¾	16/3¾	14/5
Milan (c) (lire p. quintal).										
Home-grown	101.50	101.50	101.50	101.50	101.50	101.50	93.25	98.75	99.60	* 97.10
Foreign	98.00	98.00	98.00	98.00	98.00	98.00	94.60	n. q.	100.45	92.60
Maize.										
Braila Average quality (lei p. quintal).	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	274	277	* 264	243
Chicago: No. 3 Yellow (cents p. 56 lb.).	115	108	101¾	102½	104½	104¾	113¾	83⅛	103⅝	72⅝
Buenos Aires (b): Yellow Plata (paper pesos p. quintal)	6.60	6.55	6.40	6.35	6.30	6.42	6.00	4.53	5.85	4.51
Antwerp (in bond; francs p. quintal):										
Yellow Plata	102.50	99.00	95.50	92.50	95.25	94.05	85.95	55.00	78.65	56.75
Cinquantino (Argentine "Cuarentino")	103.00	105.00	100.00	98.00	100.00	99.50	87.25	58.10	83.10	60.45
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):										
Danubian	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/5	* 16/11
Yellow Plata	27/6	26/9	26/4½	26/-	26/-	26/1½	22/7½	14/11¼	22/4	16/0½
No. 2 White flat African	27/-	n. 27/-	26/-	24/9	25/-	25/6	n. q.	10) 16/5¼	n. q.	* 17/-
Milan (c): «Alto Milanese» (lire p. quint.) 5)	82.00	82.00	82.00	82.00	82.00	82.00	86.00	80.25	85.55	81.75

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted.* — n. = *nominal.* — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Staturday prices.

1) Barley and oats, August-July; maize, May-April. — 2) Monopoly price, paid to producers, for delivery Prague; see *Crop Report* Aug. 1936, p. 609. — 3) From August 1936, delivered barley only quoted. — 4) Fixed producers' prices for the price region of Berlin. See *Govt. Measures*, No. 2, p. 57, and *Crop Report* Aug. 1936, p. 609 and July 1937, p. 571. — 5) Maximum fixed price, free at producer's station. — 6) New crop. — 7) Shipping September. — 8) New crop; shipping January-February. — 9) Shipping October. — 10) Shipping October-November.

Description	17 Sept. 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average				
						August 1937	Sept. 1936	Sept. 1935	Commercial Season 1)	
									1936	1935
Rice (milled).										
Valencia (*a*). No 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	55.50	* 57.30	56.60
Milan (*b*) (lire p quintal).										
Vialone, oiled 2)	180.00	180.00	180.00	180.00	180.00	* 180.00	172.75	153.00	177.30	159.20
Maratelli, oiled 2)	158.00	158.00	158.00	158.00	158.00	* 158.00	154.75	138.00	155.05	136.60
Originario, white 2)	131.00	131.00	131.00	131.00	131.00	131.00	125.00	132.35	125.65	121.75
Rangoon (rupees and annas p. 7500 lb.):										
No. 2 Burma	274-0	274-0	272-0	270-8	276-0	6) 273-4	248-12	262-8	264- 6	253-8
Small mills' specials	247-0	246-0	244-0	243-0	248-8	6) 245-12	277-8	231-10	223- 5	227-4
Big mills' specials	240-0	243-0	239-0	240-0	242-8	6) 241-4	220-10	225-6	214-12	219-9
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % brokens	...	...	...	9.03	9.03	7) 8.99	5.22	4.40	4.96	4.18
No. 2 Japan, 40 % brokens	...	...	...	8.62	8.70	8) 8.66	4.89	4.12	4.74	3.96
Marseilles (*a*) No. 1 Saigon (c. i. f.; frs. p. quintal)	144.00	132.50	123.00	123.00	114.00	115.50	64.60	63.25	63.65	54.80
London (*a*) (c. i. f.; shillings p cwt.):										
No. 3 Spanish Belloch oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/2	* 10/4½	* 12/7
No. 6 Italian good, oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. n.	n. q.	n. q.	n. q.	* 14/0½
American Blue Rose, extra fancy	9) 16/1½	9) 16/1½	9) 16/1½	9) 16/4½	9) 16/6	9) 16/5½	n. q.	13/9¼	18/4¼	* 15/5¾
No. 2 Rangoon or Bassein (Burma) 3)	9/10½	9/9	9/8¼	9/9¾	9/9¾	9/7½	8/0¾	8/1	7/9¾	7/8
No 1 Saigon	10/3	10/4½	10/3	10/-	9/10½	9/10	8/10¾	7/10½	8/0½	7/5¼
Siam Super, white 3)	11/4½	11/3	11/6	11/6	12/-	11/5½	9/2¼	9/9	9/0½	9/2¾
Tokyo: Chumai (brown Japanese, average quality, yen p koku)	33.40	33.50	32.20	31.70	32.20	32.20	31.90	31.67	30.70	29.87
Linseed.										
Buenos Aires (*a*): Current quality (paper pesos p quintal)	16.20	15.90	15.80	15.75	15.55	15.85	14.77	12.99	14.34	12.28
Bombay Bold (rupees p cwt)	8-3-9	8-3-9	8-3-6	8-2-9	8-2-0	8-2-1	7-6-4	6-11-3	7-6-7	6-10-8
Antwerp. Plata (in bond, frs. p. quint)	193.00	189.00	191.00	193.00	193.00	191.75	172.50	141.00	162.25	127 55
London (c i. f; £ p long ton)										
Plata (delivery Hull)	13-11-3	13- 2-6	13- 1-3	13- 2-6	13- 2-6	13- 3-9	11-15-11	n. 9-16-3	11- 6-4	9-13-2
Bombay Bold	15-16-3	15-12-6	15-10-0	15-13-9	15-11-3	15-12-2	13-18- 1	12- 7-6	13-12-1	12- 5-5
Duluth: No 1 Northern (futures, cents p 56 lb)	10) 203	10) 200½	10) 197½	10) 192½	10) 194	10) 198¾	10) 207¼	165½	191	172¼
Cottonseed.									1936-37	1935-36
Alexandria (piastres p. ardeb).										
Upper Egypt	55.3	58.0	57.6	59.8	n. 58.2	62.5	69 4	63.2	77.8	69.7
Sakellaridis	51.1	n. q.	n q.	n. q.	n. 52.7	* 57.9	* 64 9	58.2	72.6	* 64.0
London: Sakellaridis (c i.f, delivery Hull; £ p long ton) 4)	6-5-0	6-7-6	6-7-6	6-11-3	n. 6-11-3	6-14-8	n. 6-17-2	n. 6-4-4	7-18-8	n. 6-13-7
Cotton.										
New Orleans: Middling (cents p lb).	8.85	9.12	9.26	9.50	9.99	10.34	12.27	11.33	12.78	11.64
New York. Middling (cents p lb)	9.05	9.23	9.36	9.60	10.08	10.41	12.31	10.80	12.91	11.74
Bombay (rupees p 784 lb)										
Broach, f g. (futures)	11) 183-12	11) 183-12	11) 190-12	11) 191-8	11) 182-8	12) 189-0	11) 216-4	11) 200-8	224-14	210- 4
Broach, f g (spot)	n. q	n. q.	177-0	178-0	185-0	186-12	n. q.	220-12	* 228- 4	* 219- 0
Oomra, fine (spot)	n. q.	n. q.	n. q.	n. q	n. q.	n. q.	n. q.	195-4	* 214-14	198-12
Alexandria (talaris p. kantar):										
Sakellaridis, f. g f	15.75	16.10	16.40	16.90	17.25	17.45	17.41	14.32	19.22	16.11
Ashmuni, f g f	n. 11.60	n. 11.90	n. 12.00	n. 12.45	n. 12 85	n. 13.81	12.74	12.00	15.19	13.61
Bremen: Middling (U. S cents p lb).	11.06	11.39	11.82	12 14	12.58	12.79	14.42	13.02	15.01	13.88
M. g. Broach, f. g. (pence p lb)	n. 5.15	n. 5.30	n. 5.35	n. 5.35	n. 5.85	n. 5.72	n. 5.64	n. 6.00	n. 5.78	n. 5.86
Le Havre: Middling (Gulf; frs p 50 kg).	382.00	383.00	367.00	370.00	386.50	392.25	258.25	222.85	366.60	240 00
Liverpool (pence per lb):										
Middling, fair 5)	6.18	6.31	6.41	6.48	6.63	5) 6.91	n. 7.95	n. 7.30	n. 8.26	n. 7.58
Middling	5.33	5.46	5.56	5.63	5.78	5.88	6.85	6.30	7.11	6.53
São Paulo, g. f	5.48	5.66	5.76	5.78	5.93	6.03	6.86	6.45	7.21	6.81
Broach, good staple, f g.	n. 4.38	n. 4.60	n. 4.72	n. 4.80	n. 4.93	n. 4.99	n. 5.53	5.20	n. 5.71	5.43
C. P. Oomra, superfine	4.63	4.78	4.90	4.98	5.11	5.16	5.69	5.27	5.85	5.61
Egyptian Sakellaridis, f g f.	8.70	8 86	9.02	9.02	9 11	9.22	10.36	8.29	10.79	9.18
Upper Egyptian, f. g f	7.02	7.33	7.58	7.68	8.34	8.36	7.53	7.21	8.46	7.49

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Producers' prices, f. o. r, from 22 Oct. 1936 to 20 Feb. 1937; subsequently producers' prices, free at wholesalers' stores; including sacks. — 3) As from June 1936, "London Standard". — 4) Spot prices, delivery London, as from 15 Jan 1937. — 5) Commencing August 1937 the quotations are based on the official classification "Universal Standards" of 1935 instead of that of 1923; this refers to best quality "Super good middling" — 6) See note on page 750. — 7) 6 and 13 August: 8.95. — 8) 13 August: 8.70; 6 August: 8.62. — 9) New crop; shipping October-November. — 10) September futures. — 11) April-May futures. — 12) July-August futures.

DESCRIPTION	17 Sept. 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average				
						August 1937	Sept. 1936	Sept. 1935	Commercial Season	
									1936	1935
Bacon.										
London, Provision Exchange (*a*) (shillings, p cwt.):										
English, No. 1, lean sizable	105/-	101/-	101/-	101/-	101/-	103/6	95/4	85/3	91/9	89/11
Danish, No. 1, sizable	106/-	102/-	100/-	100/-	100/-	102/6	100/-	85/-	93/8	88/6
Irish, No. 1, sizable	106/-	100/6	100/6	100/6	100/6	103/6	93/4	84/-	91/10	88/8
Lithuanian, No 1, sizable	100 -	96/-	94/-	94/-	94/-	97/-	88/-	80/9	84/10	82/1
Dutch, No. 1, sizable	106/-	100/-	98/-	98/-	98/-	101/6	94/6	82/3	89/7	85/4
Polish, No 1, sizable	100/-	96/-	94/-	94/-	94/-	97/-	88/-	78/9	84/9	80/-
Swedish, No. 1, sizable	106/-	100/-	98/-	98/-	98/-	101/6	94/6	81/9	89/5	85/2
Canadian, No. 1, sizable	100/-	96/-	94/-	94/-	94/-	97/-	88/-	78/9	84/-	79/3
Butter.										
Copenhagen (*b*): Danish (crs. p quint)	245,00	237.00	237.00	237.00	223.00	225.00	220.50	225.00	207.15	192.30
Leeuwarden, Commission for butter quotations (*b*) Dutch (cents p. kg.) 1)	84	81	81	80	75	78 1/4	57 1/2	58	57 3/8	48 7/8
Antwerp (frs p kg)	25.05	25.45	25.30	24.80	24.70	23.65	19.30	20.40	19.00	17.90
Germany (*c*)(fixed prices, Rm p. 50 kg) 2):										
With quality mark	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Creamery	123 00	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00
London (*d*) English creamery, finest quality (shillings p cwt)	144/8	144/8	144/8	144/8	144/8	6) 144/8	138/10	132/2	129/1	119/6
London Provision Exchange (*a*) (shillings p cwt)										
Danish creamery, unsalted	135 6	132/-	132/-	132/-	126/-	126/6	125/1	126/3	119/1	112/9
Estonian, unsalted	n q	n. q.	n. q.	n. q.	n. q.	n. q	* 102/8	n. q.	* 105/7	* 81/11
Latvian, unsalted	n q	n. q.	n. q.	n. q.	n. q.	n. q.	n q.	n. q.	n. q.	* 86/1
Dutch creamery, unsalted	115/-	113/-	112/-	112/6	108/-	110 10	101/6	101/7	98/1	93/4
Argentine, finest, unsalted	n q	n. q.	n. q.	n. q.	n q.	n. q.	98/9	n. q.	* 97/1	* 82/10
Siberian, salted	113 6	110 6	111/-	111/6	108/6	110/10	102/7	99/1	* 100/2	* 90/7
Australian, finest, salted	116 3	115/6	115/6	116/-	113/6	115/4	106/10	109/10	99/10	89/7
New Zealand, finest, salted	116/9	115/6	116/-	116/6	114/6	116/4	107/1	110/3	100/8	91/11
Cheese.										
Milan (lire p quintal)										
Parmigiano-Reggiano, 1st quality, production 1935 3)	1,050.00	1,050.00	1,050.00	1,050.00	1 050.00	1.050.00	848.00	746.25	* 870 60	775.45
Parmigiano-Reggiano, 1st quality, production 1936 3)	900.00	900 00	900.00	900.00	900.00	900,00	785.00	687.50	896.70	734.25
Gorgonzola green, mature, choice	650 00	650.00	650.00	650.00	650.00	650.00	626 85	568.75	569.80	508.90
Rome Roman Pecorino, choice 4) (lire p q)	950.00	950.00	950.00	950.00	950.00	950.00	5) 975.00	912.50	1,121.90	865.50
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p 50 kg)	20 50	20 00	20.00	21.25	21.25	7) 21.50	16.25	20.25	17.56	14.84
Gouda (*e*) Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made 1st qual (florins p 50 kg)	28.00	28.00	28.00	27.50	29.00	8) 28 75	21.75	24.25	21.49	19.75
Kempten (*c*) (Rm p. 50 kg)										
Soft cheese, green 20 % butterfat.	29.00	29.00	29.00	29.00	29.00	29.00	26.00	26.00	26.50	26.00
Emmenthal from the Allgau, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	77.00
London Provision Exchange (*a*) (shillings p. cwt).										
English Cheddar, finest farmers	91/-	89/-	89/-	89/-	89/-	88/6	78/9	63/10	* 80/-	* 77/8
English Cheshire, Nat Mark Selected.	92/2	89/10	89/10	89/10	89/10	89/6	77/7	78/9	78/3	80/5
Italian Gorgonzola	99/2	98/-	98/-	98/-	98/-	98/-	n. q.	109/11	* 106/7	* 102/2
Dutch Edam, 40 + (*d*)	61/6	61/6	62/-	62/-	64/6	63/7	50/7	55/10	48/7	44/4
Canadian, finest white	5) 70/-	5) 70/-	5) 70/6	5) 69/6	5) 69/6	5) 70/7	70/4	5) 55/1	66/4	60/3
New Zealand, finest white	67/6	68/3	69/9	68/6	67/6	69/10	68/4	54/9	60/8	48/9

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* Indicates that the product was not quoted during part of the period under review. — n q = *not quoted* — n. = *nominal.* — *a*) Average prices Thursdays, and Friday mornings — *b*) Thursday prices — *c*) Wednesday prices — *d*) Average prices for the week. — *e*) Saturday prices

1) Home prices are increased by a consumption tax of 65 cents per kg. from 25 July to 28 August, and of 55 cents subsequently. — 2) See *Crop Report*, April 1934, p 306 — 3) Prices of 1935 cheese are compared, for the preceding years, with the yearly and monthly averages of cheese made in 1933-34 respectively; prices of 1936 cheese with 1934-35 respectively. The yearly averages refer to the periods from Sept to August. As from 6 Oct. 1936, maximum prices, between wholesaler and retailer, for choicest, quality, packing included. Up to the end of February 1937 these prices were f. o. r. sellers' stations, subsequently free at retailers' shops. — 4) Export quality until the end of June 1937; subsequently Home consumption quality. — 5) New production. — 6) 13 August (revised): 144/8. — 7) 13 August (revised): 21.00 — 8) 14 August (revised): 29.50.

Eggs.

Description	17 Sept 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average August 1937	Average Sept 1936	Average Sept 1935	Average Commercial Season 1) 1936	Average Commercial Season 1) 1935
Antwerp auction Belgian average qual (frs p 100)	69 00	68 00	65 00	59 00	56 00	53 25	65 25	58 75	50 80	48.35
Denmark (a) Danish for export (crs per quintal)	136 00	136 00	136 00	126 00	110 00	112 40	128 50	123 60	108 20	106 75
Roermond auction Dutch 57/58 gr each white (fl p 100)										
Fixed price for export into Germany				5 40	5 40	5 40	3 77	4 10	3 83	3 75
Price for other destinations							3 82	3 27	3 46	2 97
Warsaw (b) Polish average weight 50 gr each various colours (zloty p 1440 including box)	128 38	118 80	113 98	99 60	97 20	7) 97 80	92 37	96 87	* 96 05	104 43
Berlin (c) German big new laid (Rm p 100)										
marked « G I S » 65 gr each	11 25	11 25	11 25	11 25	11 25	11 25	12 00	11 50	10 77	10 57
marked G I B 55/60 gr each	10 25	10 25	10 25	10 25	10 25	10 25	10 00	10 00	9 26	9 34
London Egg Exchange (d) (sh p great hundred)										
English National Mark specials	20/-	20 -	20/-	18/9	18 3	18 3 1/2	18 6	18 7 1/2	16/9	15/9
Belgian 15 1/2 lb p 120	12/11 1/4	12 1 1/2	11 10 1/2	10 10 1/2	9 7 1/2	10 5 1/2	* 10 9	10 8 1/4	* 10/8 3/4	* 11/3 1/4
Danish 18 lb p 120	8) 13 7 1/2	8) 13 7 1/2	8) 13 4 1/2	8) 12 7 1/2	8) 11/7 1/2	8) 12 3 1/2	13 1 1/4	12 10 1/4	12/8 1/2	12/5
Northern Irish 16 lb p 120 2)	18/7 1/2	19 -	19 3	18 3	15 10 1/2	17 0 3/4	17 1 1/2	17 5 1/4	* 14/8 3/4	15/1 1/2
Dutch, all brown 67 69 grams each	15 -	15 -	15 -	14 4 1/2	13 1 1/2	13/8 1/2	14 11 1/2	14 2 1/4	13/10	13/2 1/4
Polish 51/52 grams each	8 3	8 3	8 3	7 7 1/2	7 2 1/4	7 7	6 11 1/2	7 5 1/2	* 7/2 1/2	* 7/1 1/4
Chinese violet	n q	9 1 1/2	9 3	9/-	8 9	8 11 1/2	8 7 3/4	9 0 3/4	* 9/2 1/2	* 8/10 1/2
Australian 16 lb p 120	n q	n q	n q	n q	n q	n q	* 12 3	n q	* 12/8 3/4	* 11/2 1/2

Ocean freight rates 3)

Shipments of wheat and maize.

Description	17 Sept 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average August 1937	Average Sept 1936	Average Sept 1935	Average Commercial Season 1) 1936 37	Average Commercial Season 1) 1935 36
Rates in shillings per quarter										
Churchill to United Kingdom	n 4/-	n 4 -	n 4	n 3 10 1/2	n 3 10 1/2	3 11	2 10	n q	* 2 10 1/4	n q
Montreal to United Kingdom	3 3	3 1 1/2	3 -	2 10 1/2	2 10 1/2	2 10 1/4	2 1 3/4	1 6	* 2/6	* 2 1
St John to Liverpool 4)	n q	n q	n q	n q	n q	n q	n q	n q	* 2 10 1/2	* 2 1 1/2
New York to Liverpool 4)	n q	n q	n q	n q	n q	n q	n q	1/6	n q	* 1/6
Northern Range to U K /Continent	4/6	3 6	3 6	3	3/	9) 2/10 1/2	n q	1/6	* 2/9	1 10
Gulf to United Kingdom 4)	5 6	5 6	5 6	5 -	5 -	4 11 1/2	n q	2/6	n q	* 2/6
Rates in shillings per long ton										
Danube to Antwerp/Hamburg	24 6	24 6	24/6	24 6	24 6	10) 24 4 1/2	18 3	n 14 -	* 20/4	* 15/7
Black Sea to Antwerp/Hamburg	20 9	20 6	20 6	19 -	19 -	18 10 1/2	14 6	9 11	* 16/10	* 10 2
North Pacific to United Kingdom	n 43/-	n 43	n 43 -	n 37 6	n 37 6	38 7	21 3	n q	* 29 9	* 20 -
La Plata « Down River » 5)/Bahia Blanca to U K /Continent	32 -	32	30 9	30 9	30 9	30 7	18 3	15 9	23 11	16/6
La Plata « Up River 6)/Necochea to U K /Continent	33/9	33 6	33 3	33 3	33 -	32 11	19 4	17 1	25 2	17 8
South Australia to U K Continent (in bulk)	n q	n 42 -	n 42 -	n 42 -	44	43 7 1/2	25 8	23 2	34 1	25/-
Western Australia to U K /Continent (in bags)	n 46 -	n 46 -	n 46 -	n q	n q	* 46 -	27 -	24 6	37/3	26/5
New South Wales to U K /Continent (in bulk)	n 41 6	n q.	n q	n 41 6	n 41 6	42/10 1/2	25 3	21 11	34/11	23/11

Shipments of rice.

Description	17 Sept 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	Average August 1937	Average Sept 1936	Average Sept 1935	Average Commercial Season 1) 1936	Average Commercial Season 1) 1935
Rates in shillings per long ton										
Saigon to Europe	45 9	45 9	45 -	45 6	42 -	43/6	26 8	23 3	26/3	* 22/7
Burma to U K /Continent	n q	n q	n q	n q	n q	n q	n q	n q	* 24 -	* 21/8

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* Indicates that the product or the ocean freight was not quoted during part of the period under review — n q *not quoted* — n = *nominal* — *a*) Average prices for weeks commencing on Fridays indicated — *b*) Average prices for weeks commencing on preceding Mondays — *c*) Thursday prices — *d*) Prices on preceding Monday

1) Shipments of wheat and maize Aug July 2) From Feb 1936 Extra special quality — 3) Average rates for entire cargoes, except where otherwise stated relating often to contracts made during a period extending back several months to operate during the weeks specified — 4) Rates for parcels by liners — 5) Down River includes the ports of Buenos Aires La Plata and Montevideo 6) Up River includes the ports on the Paraná River as far as San Lorenzo Cargoes from ports beyond San Lorenzo (Colastine Santa Fé and Paraná) are subject to an extra rate of freight — 7) 16 28 August 97 20. — 8) Eggs weighing 17 lb per 120 — 9) Week ending 6 and 13 Aug (revision) 2/9 — 10) Revised data last two weeks July 20/6, first two weeks Aug n 24/3

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR 1)

NATIONAL CURRENCIES	Parity (1)	Actual Exchange Rates					Percentage deviation from parity with U. S. dollar: premium (+) or discount (—)				
		17 Sept. 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937	17 Sept. 1937	10 Sept. 1937	3 Sept. 1937	27 August 1937	20 August 1937
Germany: reichsmark	40.332	...	40.142	40.146	40.191	40.223	...	— 0.5	— 0.5	— 0.3	— 0.3
Argentina: paper peso	71.959	...	n. 32.978	n. 33.053	n. 33.160	n. 33.245	...	— 54.2	— 54.1	— 53.9	— 53.8
Belgium: belga	2) 23.542 3) 16.950	...	16.834	16.845	16.838	16.844	... ...	— 28.5 — 0.7	— 28.4 — 0.6	— 28.5 — 0.7	— 28.5 — 0.6
Canada: dollar	100.000	...	99.969	99.980	99.982	99.982	...	0.0	0.0	0.0	0.0
Denmark: crown	45.374	...	22.076	22.134	22.193	22.258	...	— 51.3	— 51.2	— 51.1	— 50.9
Spain: peseta	32.669	...	n. 6.469	n. 6.528	n. 6.583	n. 6.828	...	— 80.2	— 80.0	— 79.8	— 79.1
France: franc 4)	6.633	...	3.560	3.728	3.742	3.753	...	— 46.3	— 43.8	— 43.6	— 43.4
Great Britain: £ sterling 5)	8.2397	...	4.9460	4.9585	4.9730	4.9879	...	— 40.0	— 39.8	— 39.6	— 39.5
Hungary: pengö	29.612	...	n. 19.747	n. 19.742	n. 19.752	n. 19.757	...	— 33.3	— 33.3	— 33.3	— 33.3
India: rupee	61.798	...	37.340	37.421	37.538	37.650	...	— 39.6	— 39.4	— 39.3	— 39.1
Italy: lira	2) 8.911 6) 5.263	...	5.261	5.260	5.260	5.260	... ...	— 41.0 0.0	— 41.0 — 0.1	— 41.0 — 0.1	— 41.0 — 0.1
Japan: yen	84.396	...	28.810	28.908	29.003	29.069	...	— 65.9	— 65.7	— 65.6	— 65.6
Netherlands: florin	68.057	...	55.000	55.176	55.143	55.172	...	— 19.2	— 18.9	— 19.0	— 18.9
Poland: zloty	18.994	...	18.883	18.892	18.897	18.897	...	— 0.6	— 0.5	— 0.5	— 0.5
Romania: leu	1.013	...	n. 0.737	n. 0.728	n. 0.722	n. 0.730	...	— 27.2	— 28.1	— 28.7	— 27.9
Sweden: crown	45.374	...	25.494	25.561	25.638	25.711	...	— 43.8	— 43.7	— 43.5	— 43.3
Switzerland: franc	32.669	...	22.965	22.970	22.947	22.965	...	— 29.7	— 29.7	— 29.8	— 29.7
Czechoslovakia: crown	2) 5.016 7) 3.512	..	3.492	3.491	3.491	3.488	... ...	— 30.4 — 0.6	— 30.4 — 0.6	— 30.4 — 0.6	— 30.5 — 0.7

1) Parties and current rates are both expressed in U. S. cents per unit of the foreign currency. (The £ sterling is expressed in dollars). The dollar contains 0.8886706 grams of fine gold, i. e. 40.9 % less than formerly. — 2) Former parity. — 3) New parity as from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — 5) Quotations for the Egyptian pound are omitted, its relationship with the £ sterling being fixed (97 ½ piastres = 1 £ sterling). — 6) New parity as from 5 Oct. 1936. — 7) New parity as from 10 Oct. 1936.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural products and other price-indices of interest to the farmer, as published in the different countries, are given in the following pages.

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

COUNTRIES	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
	Index-numbers for August 1937			
	in comparison with July 1937		in comparison with August 1936	
Germany (products sold by farmers)	— 1.0	—	+ 2.0	—
Germany (wholesale prices)	+ 0.7	+ 0.3	0.0	+ 2.0
England and Wales	+ 1.5	— 1.8	+ 9.7	+ 16.8
Argentina	— 0.7	—	+ 13.2	—
Canada	— 8.2	— 2.2	+ 15.8	+ 12.3
United States: Bureau of Agric. Economics	— 1.6	—	— 0.8	—
Finland	+ 1.1	0.0	+ 11.4	+ 13.1
Hungary	0.0	0.0	+ 12.7	+ 9.3
New Zealand	+ 0.8	—	+ 13.1	—
Netherlands	0.0	+ 0.1	+ 20.0	+ 23.8
Poland	— 1.1	— 0.5	+ 20.7	+ 10.8
Sweden	+ 1.6	—	+ 5.7	—
Yugoslavia vegetable product	+ 4.2	+ 2.2	+ 22.5	+ 14.1
Yugoslavia animal production	+ 0.9		+ 5.6	
	Index numbers for July 1937			
	in comparison with June 1937		in comparison with July 1936	
Belgium	+ 5.1	—	+ 14.3	—
United States: Bureau of Labor	+ 0.9	+ 9.8	+ 0.8	+ 9.2
Lithuania	+ 2.1	0.0	+ 29.7	+ 18.2

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	August 1937	July 1937	June 1937	May 1937	April 1937	March 1937	August 1936	August 1935	Year	
Germany 2)									1936-37 6)	1935-36 6)
(Statistisches Reichsamt) Average for corresponding months 1909-10 1913-14 = 100										
Cereals	110	103	102	101	103	107	102	100	105	104
Edible potatoes	178	137	112	122	116	114	131	131	115	119
Plant products	115	117	103	107	107	108	109	107	107	107
Meat animals	94	95	97	96	95	93	95	93	94	96
Dairy and poultry products	103	113	117	113	109	102	108	108	106	106
Livestock products	99	101	104	102	99	96	99	97	98	99
Total agricultural products	103	104	104	103	101	96	101	100	100	101
Germany 3)									1936	1935
(Statistisches Reichsamt) 1913 = 100										
Foodstuffs of plant origin	116.9	118.2	115.7	115.5	114.5	114.6	115.2	114.5	114.1	113.4
Livestock	90.7	88.9	87.4	86.2	85.7	84.8	92.0	88.6	89.4	84.2
Livestock products	111.9	107.8	107.8	107.8	109.4	110.4	111.6	109.6	109.4	107.1
Feeding stuffs	104.6	107.0	108.3	107.7	107.3	106.7	106.6	103.7	107.5	104.6
Total agricultural products	106.4	105.7	104.6	104.1	103.9	103.9	106.4	104.3	104.9	102.2
Fertilizers	54.0	52.9	55.8	57.1	60.6	61.9	64.4	65.9	66.8	66.8
Agricultural dead stock	112.7	112.7	112.7	112.7	112.8	112.7	111.5	111.1	111.6	111.1
Finished manufactures (Konsumguter)	133.6	133.3	132.9	132.5	131.8	131.4	127.8	124.1	127.3	124.0
Wholesale products in general	106.7	106.4	106.1	105.9	105.8	106.1	104.6	102.4	104.1	101.8
England and Wales										
(Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100										
Agricultural products 4)	136	134	134	136	143	134	124	120	126	123
Feeding stuffs	119	122	119	119	124	118	105	80	93	87
Fertilizers	92	91	91	91	91	91	88	87	89	88
Wholesale products in general 5)	122.0	124.2	122.7	124.4	122.7	125.8	104.4	89.9	104.4	99.5
Argentina										
(Banco Central de la Republica Argentina) 1926 = 100										
Cereals and linseed	101.6	103.2	97.7	102.4	102.6	99.7	92.9	64.3	82.6	67.2
Meat	97.3	95.7	92.6	86.3	83.4	78.1	101.4	88.6	91.0	84.0
Hides and skins	122.7	125.8	118.1	123.9	139.4	137.0	83.4	76.3	91.0	80.5
Wool	147.1	143.3	144.9	153.9	160.4	156.8	106.4	78.7	107.6	74.6
Dairy products	110.2	98.2	91.7	85.8	87.3	89.3	92.9	104.6	85.5	88.8
Forest products	100.2	100.2	98.7	97.8	97.8	97.3	95.6	91.8	96.3	92.2
Total agricultural products	106.3	107.0	102.4	105.7	107.1	104.1	93.9	71.0	86.6	72.1

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1) For an explanation of the method of calculating the index numbers reference should be made to the Institute's publication *Index numbers of Prices of Agricultural Products and other Price indices of interest to the farmer* (Rome 1930) and to the *Crop Report*, January 1932 pages 77 to 79 July 1932, page 502 March 1934 page 231 December 1934 page 996 — 2) Index numbers of products sold by farmers — 3) Index numbers of wholesale prices — 4) Revised index numbers due to the Wheat Act payments as from August 1932 and the Cattle Emergency Act payments as from September 1934 — 5) Calculated by the *Statist* reduced to base year 1913 = 100 — 6) Agricultural year 1 July to 30 June

DESCRIPTION	August 1937	July 1937	June 1937	May 1937	April 1937	March 1937	August 1936	August 1935	Year 1936	Year 1935
Belgium (Belgische Boerenbond Boerenbond belge) Average of corresponding months 1909 14 = 100										
Field products	.	547	543	576	594	562	457	438	508	438
Livestock products	. .	637	604	559	547	586	575	562	576	532
Total agricultural products	.	615	585	565	562	578	538	523	555	502
Rent	.	650	650	645	645	645	610	555	605	551
Agricultural wages		855	855	850	845	840	780	730	778	737
Fertilizers		447	433	433	431	434	443	412	427	394
Feedingstuffs		596	601	573	601	594	578	443	513	444
Total production expenses (included those not specified)	. .	736	735	727	731	728	705	631	699	630
Canada (Dominion Bureau of Statistics Internal Trade Branch) 1926 = 100										
Field products (grain etc.)	84.6	97.7	85.1	89.0	94.4	93.4	74.1	56.0	65.8	57.1
Livestock and livestock products	85.5	83.9	81.4	85.7	86.3	84.2	71.9	72.4	75.3	73.9
Total Canadian farm products	84.9	92.5	83.7	87.8	91.4	90.0	73.3	62.1	69.4	63.4
Fertilizers	74.5	74.5	74.5	74.5	74.5	74.2	74.3	75.8	74.5	75.8
Consumers goods (other than foodstuffs beverages and tobacco)	79,1	79.0	78.5	78.2	77.7	77.5	75.5	75.5	75.5	75.7
Wholesale products in general	85.6	87.5	84.6	85.1	86.1	85.5	76.2	71.7	74.6	72.1
Irish Free State (Department of Industry and Commerce) Average 1911 1913 = 100										
Agricultural products in general			107.9	106.5	103.6	98.6	92.2	79.9	90.6	83.0
United States (Bureau of Agricultural Economics) Average 1909 10 to 1913 14 = 100										
Cereals	119	139	139	149	154	145	129	96	108	103
Cotton and cottonseed	90	106	107	112	117	116	103	97	100	101
Fruits	123	145	157	152	142	133	108	87	100	91
Truck crops (market garden crops)	104	96	124	139	127	131	134	92	113	127
Meat animals	151	144	137	133	130	129	123	129	121	117
Dairy products	119	116	113	116	120	125	125	98	119	108
Chickens and eggs	109	102	95	96	104	102	112	111	115	117
Miscellaneous	128	113	119	133	138	140	152	102	122	97
Total agricultural products	123	125	124	128	130	128	124	106	114	108
Commodities purchased 1)	132	133	133	134	134	132	126	125	124	125
Agricultural wages 1)	—	123	—	—	112	—	2) 108	2) 99	106	95
United States (Bureau of Labor) 1926 = 100										
Cereals		105.2	105.7	113.9	119.2	113.2	102.4	79.3	88.1	82.4
Livestock and poultry		105.0	98.3	95.9	93.6	93.7	84.5	91.6	84.8	84.9
Other farm products		75.1	77.4	79.0	83.4	88.5	77.8	71.4	76.0	73.4
Total agricultural products		89.3	88.5	89.8	92.2	94.1	83.8	79.3	80.9	78.7
Agricultural implements		94.2	94.1	93.8	92.1	93.1	94.2	93.6	94.1	93.7
Fertilizer materials		71.3	70.5	70.6	70.7	70.3	66.7	66.8	65.9	66.3
Mixed fertilizers		74.2	72.3	72.2	72.0	71.7	69.3	68.1	68.3	70.6
Cattle feed		116.5	116.9	139.9	146.8	135.0	114.2	71.3	94.0	88.4
Non agricultural commodities	.	87.5	86.8	86.7	86.9	86.3	80.9	80.6	80.7	80.2
Wholesale products in general	.	87.9	87.2	87.4	88.0	87.8	81.6	80.5	80.8	80.0

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1) 1910 1914 = 100 — 2) July.

Description	August 1937	July 1937	June 1937	May 1937	April 1937	March 1937	August 1936	August 1935	Year	
									1936	1935
Finland (Central Bureau of Statistics) 1926 = 100										
Cereals	101	106	112	116	117	116	87	78	91	80
Potatoes	77	83	59	65	71	76	77	83	74	75
Fodder	67	67	70	74	75	75	60	55	64	62
Meat	89	87	86	83	79	87	86	81	80	75
Dairy products	92	85	81	83	85	87	81	84	82	83
Total agricultural products	88	87	86	87	88	91	79	77	79	76
Wholesale products in general	103	103	103	104	103	103	91	90	92	90
Hungary (Central Bureau of Statistics) 1913 = 100										
Agricultural and livestock products	80	80	78	79	79	80	71	79	—	—
Wholesale products in general	94	94	94	95	94	95	86	89	—	—
Lithuania (Lietuvos Bankas) 1926 29 = 100										
Cereals	...	50	49	48	48	47	36	37	37	39
Cattle, fowls	...	50	50	51	50	47	43	27	40	30
Leather, hides, wool	...	59	59	62	62	61	49	36	50	38
Meat, dairy products and eggs	...	42	41	42	41	44	36	32	38	35
Total agricultural products	...	48	47	48	47	47	38	33	39	35
Wholesale products in general	...	52	52	52	52	51	45	44	45	45
New Zealand (Census and Statistics Office) Average 1909-13 — 100.										
Dairy products	115.6	113.9	112.6	108.3	97.6	90.4	119.8	90.8	105.6	91.3
Meat	160.4	164 3	163.4	164.5	164.5	162.7	155.0	148.0	161.5	157.6
Wool	175 3	169.7	180.9	190.8	184.6	175.2	107.4	85.1	111.5	82.2
Other pastoral products	167.2	151.6	153.1	151.8	145.1	147.0	124.4	100.7	123.6	96.7
All pastoral and dairy products	143.4	142.5	144.1	144.5	138.1	132.6	127 5	105.3	122.9	107.2
Field products	139.8	129.3	130.6	138 4	134.3	140.4	120.4	126.3	124.2	126.0
Total agricultural products	143.3	142.1	143.7	144.3	138.0	132.8	126.6	106.0	123.9	108.8
Norway (Kgl. Selskap for Norges Vel) Average 1909-14 = 100									1936-37 1)	1935 36 1)
Cereals	175	173	172	172	171	169	154	143	154	144
Potatoes	203	227	188	134	142	153	101	168	132	165
Pork	126	123	108	103	102	107	112	107	110	109
Other meat	207	206	185	165	154	155	155	161	148	146
Dairy products	161	158	156	153	153	151	135	139	139	139
Eggs	120	109	98	96	101	122	110	99	113	102
Concentrated feeding stuffs	154	152	153	151	148	143	127	125	130	123
Maize	148	145	146	139	136	132	132	114	130	113
Fertilizers	89	90	90	90	90	89	86	83	87	82

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1) Agricultural year: 1st April-31st March.

SPECIFICATION	August 1937	July 1937	June 1937	May 1937	April 1937	March 1937	August 1936	August 1935	Year 1936-37 2)	Year 1935-36 2)
Netherlands (Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	65	64	61	62	61	60	57	52	58	50
Livestock products	66	66	63	63	64	62	54	48	57	51
Total agricultural products	66	66	62	62	63	61	55	49	57	51
Agricultural wages	68	68	68	68	68	68	68	69	68	69
Wholesale products in general 1)	77.6	77.5	76.3	76.7	77.1	76.0	62.7	60.8	3) 63.8	3) 61.5
Poland (Central Bureau of Statistics) 1928 = 100									1936	1935
Raw plant products	53.1	56.9	61.6	55.8	54.2	54.7	34.6	29.6	38.1	33.9
Meat animals	46.4	47.9	42.3	41.9	43.7	43.3	40.7	45.3	38.7	35.5
Dairy products and eggs	46.8	43.6	43.8	47.0	47.6	49.3	36.9	40.2	40.4	41.2
Products directly sold by farmers	49.7	51.4	51.9	49.6	49.5	50.0	37.0	36.7	38.7	35.8
Flour and groats	55.7	54.3	60.2	57.5	56.7	59.4	40.3	34.7	41.2	36.7
Meat and lard fat	50.7	50.2	46.7	47.6	47.8	47.9	47.8	47.3	44.3	40.8
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.4	79.3	71.5	79.2
Products of agricultural industries	59.1	58.5	58.9	58.6	58.4	59.3	63.1	53.7	52.2	52.0
Total agricultural products	54.3	54.9	55.4	54.0	53.9	54.6	45.0	45.1	45.4	43.8
Commodities purchased 2)	66.3	66.5	66.1	66.3	66.4	66.4	64.8	66.0	64.6	66.3
Wholesale products in general 2)	59.7	60.0	60.3	59.9	60.1	60.6	53.9	53.5	54.0	53.0
Sweden (Sveriges Allmanna Lantbrukssällskap) Average 1909-13 = 100.										
Plant products	125	130	126	127	128	126	108	99	108	108
Dairy products	133	125	124	132	132	136	130	111	133	122
Meat animals	134	135	126	123	118	120	135	132	126	120
Livestock products	133	127	124	129	128	132	131	116	131	121
Total agricultural products	130	128	125	128	128	130	123	111	123	117
Feedingstuffs	139	134	133	137	139	139	140	122	133	125
Fertizers	94	93	94	94	94	94	94	97	95	95
Building materials	194	194	194	194	193	191	164	162	161	162
Machinery and implements	208	196	196	196	196	196	179	179	177	177
Sundries	131	130	131	128	127	123	111	106	112	109
Total commodities purchased	146	143	143	144	144	143	135	128	133	129
Agriculural wages	193	193	193	193	193	193	174	170	164	170
Yugoslavia (National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	...	71.5	69.3	69.8	65.8	67.8	60.8	67.6	69.7	68.2
Livestock products	...	65.5	62.0	62.7	65.7	64.3	62.6	53.1	60.0	56.6
Industrial products	...	76.3	75.9	76.5	76.6	75.4	67.6	66.4	69.7	66.7
Wholesale products in general	...	73.7	72.1	72.6	72.3	72.1	66.0	64.8	68.4	65.9

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1) New index-numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) Agricultural year: 1 July to 30 June. — 3) Calendar year

Fixing price of wheat in France.

The price of new soft wheat, good merchantable quality, of the specific weight 76 kg, has been fixed, by Decree of 25 August 1937, at 181 *fcs.* per quintal, to commence on 1st September 1937.

This price to be increased monthly, by 1 *franc* per quintal, up to the end of January 1938, and by 1.50 *fcs.* per quintal from February to August 1938 inclusive.

Deliveries effected by producers before 1st Septembre 1937 to be regulated on the basis of 180 *fcs.* per quintal.

On these conditions the price is established as follows:—

September	181 00	March	188 00
October	182.00	April	189 50
November	183 00	May	191 00
December	184 00	June	192 50
January	185 00	July	194 00
February	186 50	August	195.50

The above prices per quintal are increased by 75 *centimes* per half kg. for wheat of specific weight of from 76.5 to 79.999 kg. per hectolitre, and reduced by 75 *centimes* per half kg. when the weight is from 75.499 kg. to 72 kg. per hectolitre. When the weight is over 80 kg. the addition is to be fixed at a sum superior to 5.25 *fcs.*, and when under 72 kg. the reduction will be 1 *franc* per half kg.

Prices of rice in Rangoon.

Commencing on 1st April 1937, after the political separation of Burma from India, the prices of rice produced in Burma are no longer furnished by the Department of Commercial Intelligence and Statistics, India, but directly by the Government of Burma, Department of Commerce and Industry. Prices furnished by the latter, differ slightly from those previously sent by the Government of India.

The new prices for the period from 2nd April to 13th August 1937 are as folow:—

	Varieties				Varieties		
Dates	Burma No 2	Small mills, specials	Big mills, specials	Dates	Burma No. 2	Small mills, specials	Big mills, specials
(Prices in rupees and annas per 7,500 lb.)							
2 April	259-0	231-8	222-8	11 June	253-8	226-0	220-0
9 »	265-0	237-8	230-0	18 »	249-8	222-0	216-8
16 »	260-0	232-8	225-0	25 »	245-0	217-8	213-8
23 »	260-0	232-8	225-0	2 July	253-0	225-8	218-8
30 »	255-8	228-0	222-8	9 »	251-8	224-0	219-0
7 May	254-8	227-0	222-8	16 »	258-8	231-0	225-0
14 »	256-0	228-8	222-8	23 »	257-8	230-0	225-0
21 »	255-0	227-8	220-0	30 »	255-0	227-8	222-8
28 »	256-0	228-8	220-0	6 August	262-8	235-0	230-0
4 June	260-0	232-8	225-0	13 »	271-0	243-8	237-8

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for August already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1937	EXPORTS 1936	IMPORTS 1937	IMPORTS 1936
PALESTINA BR. M. T.		May	May	May	May
Wheat	1000 centals	0	0	64	29
Wheat flour . . .	» »	0	0	48	80
Rye	» »	—	—	6	1
Barley	» »	0	0	12	32
Maize	» »	0	0	17	15
Rice	» »	17	0	67	18
Linseed	» »	—	—	0	4
tton	» »	0	0	1	1
ol	1000 lb.	104	4	2	0
ter .	» »	—	—	690	476
ese . . .	» »	0	0	194	104
ao . . .	» »	—	—	15	35
Tea	» »	0	0	37	31
offee .	» »	0	0	366	101
IRAN		June	June	June	June
Wheat	1000 centals	115	205	0	0
Wheat flour . . .	» »	0	0	0	0
Barley	» »	36	22	0	0
Rice	» »	58	0	0	0
Cotton	» »	32	10	0	0
Wool	1000 lb.	692	278	0	0
Butter	» »	0	0	0	0
Cheese	» »	0	0	0	0
Cacao	» »	—	—	0	0
Tea	» »	0	0	1,627	260
Coffee	» »	0	0	18	9
PALESTINA BR. M T					
Wheat	1000 centals	1	0	8	15
Wheat flour . . .	» »	0	0	43	83
Rye	» »	—	—	22	8
Barley	» »	24	0	6	51
Maize	» »	0	1	21	9
Rice	» »	19	0	39	34
Linseed	» »	—	—	0	4
Cotton	» »	0	0	1	0
Wool	1000 lb.	77	0	13	0
Butter	» »	—	—	536	692
heese	» »	0	0	212	115
ao	» »	—	—	0	46
a	» »	0	0	31	44
ffee	» »	0	0	256	146
ROMANIA		July	July	July	July
heat	1000 centals	777	166	...	...
e	» »	346	7	...	...
ley	» »	251	185	...	...
ats	» »	6	6	...	...
aize	» »	783	1,914	...	...
SANTO DOMINGO					
ize	1000 centals	22	14	—	—
tton	» »	0	0	—	—
cao	1000 lb.	5,609	1,814	—	—
ffee	» »	1,228	1,263	—	—

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1937	EXPORTS 1936	IMPORTS 1937	IMPORTS 1936
CHOSEN		July	July	July	July
Wheat	1000 centals	0	0	0	0
Wheat flour . . .	» »	1	4	0	0
Barley	» »	2	0	0	2
Oats	» »	2	0	0	0
Maize	» »	0	0	25	0
Rice	» »	1	3	0	0
Cotton	» »	0	0	1	1
Tea	1000 lb.	15	20	4	0
BURMA					
Wheat	1000 centals	0	—	12	—
Wheat flour . . .	» »	0	—	70	—
Barley	» »	—	—	0	—
Maize	» »	65	—	—	—
Rice	» »	5,335	—	3	—
Linseed	» »	—	—	0	—
Cotton	» »	4	—	—	—
Wool	1000 lb.	24	—	—	—
Butter	» »	—	—	35	—
Cheese	» »	—	—	7	—
Tea	» »	57	—	60	—
Coffee	» »	—	—	15	—
NETHERLANDS INDIES: JAVA AND MADURA					
Maize	1000 centals	51	192	—	—
Rice	» »	25	38	...	...
Cotton	» »	1	0	...	...
Cacao	1000 lb.	547	291	—	—
Tea	» »	9,200	9,698	...	...
Coffee	» »	8,402	2,967	—	—
INDO-CHINA					
Wheat flour . . .	1000 centals	...	...	38	34
Maize	» »	1,034	1,407	—	—
Rice	» »	2,183	3,121	...	...
Coffee	1000 lb.	62	71	...	...
GERMANY		August	August	August	August
Wheat	1000 centals	0	41	3,687	144
Wheat flour . . .	» »	1	33	209	1
Rye	» »	0	0	319	6
Barley	» »	0	0	307	26
Oats	» »	0	0	105	0
Maize	» »	0	0	4,391	185
Rice.	» »	65	64	424	539
Linseed	» »	0	0	464	82
Cotton	» »	0	1	471	386
Wool a)	1000 lb.	0	9	15,600	9,949
Wool b)	» »	0	7	2,738	4,092
Butter	» »	0	0	18,991	12,769
Cheese	» »	2	11	8,761	6,223
Cacao	» »	201	0	11,755	12,017
Tea.	» »	44	0	860	725
Coffee.	» »	0	0	29,386	25,098

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a) Wool greasy. — b) Wool scoured.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1937	1936	1937	1936
		August	August	August	August
FINLAND					
Wheat	1000 centals	0	0	95	193
Wheat flour	» »	0	0	41	55
Rye	» »	0	0	35	21
Barley	» »	0	0	0	0
Oats	» »	0	0	18	20
Maize	» »	0	0	60	159
Rice	» »	—	—	21	22
Linseed	» »	0	0	15	10
Cotton	» »	0	0	24	15
Wool	1000 lb.	18	9	553	448
Butter	» »	1,669	2,288	0	0
Cheese	» »	1,010	999	0	0
Cacao	» »	—	—	22	18
Tea	» »	—	—	18	20
Coffee	» »	—	—	3,865	4,773
FRANCE					
Wheat	1000 centals	157	597	545	718
Wheat flour	» »	166	192	69	112
Rice	» »	0	0	0	6
Barley	» »	0	0	117	659
Oats	» »	1	1	42	114
Maize	» »	0	0	769	1,056
Rice	» »	16	33	963	1,271
Linseed	» »	0	0	390	349
Cotton	» »	25	26	273	318
Wool	1000 lb.	5,509	6,124	22,227	13,847
Butter	» »	670	1,947	150	165
Cheese	» »	1,387	1,671	2,099	2,191
Cacao	» »	0	0	5,176	8,788
Tea	» »	0	0	194	187
Coffee	» »	2	4	32,618	34,780
HUNGARY					
Wheat	1000 centals	533	1,805	0	0
Wheat flour	» »	59	89	0	0
Rye	» »	157	161	0	0
Barley	» »	58	7	0	0
Oats	» »	0	14	0	0
Maize	» »	295	0	0	251
Rice	» »	0	0	38	32
Linseed	» »	0	0	0	0
Cotton	» »	0	0	29	40
Wool	1000 lb.	176	322	22	44
Butter	» »	1,365	1,107	0	0
Cheese	» »	276	82	0	0
Cacao	» »	—	—	461	721
Tea	» »	—	—	24	35
Coffee	» »	—	—	317	317
NORWAY					
Wheat	1000 centals	0	0	253	238
Wheat flour	» »	0	0	2	54
Rye	» »	0	0	45	154
Barley	» »	0	0	10	39
Oats	» »	0	0	0	0
Maize	» »	0	0	110	257
Rice	» »	0	0	12	5
Linseed	» »	0	0	0	26
Cotton	» »	0	0	4	2
Wool	1000 lb.	214	73	168	196
Butter	» »	0	0	0	0
Cheese	» »	346	337	24	18
Cacao	» »	—	—	423	481
Tea	» »	—	—	26	22
Coffee	» »	—	—	3,741	2,158
NETHERLANDS					
Wheat	1000 centals	0	0	1,127	737
Wheat flour	» »	61	0	92	139
Rye	» »	62	15	81	177
Barley	» »	31	10	264	441
Oats	» »	10	0	94	43
Maize	» »	0	0	1,304	1,504
Rice	» »	217	248	452	414
Linseed	» »	8	6	254	1,075
Cotton	» »	1	3	65	77
Wool a)	1000 lb.	375	397	304	381
Wool b)	» »	49	75	511	370
Butter	» »	11,288	13,827	0	7
Cheese	» »	12,719	11,625	55	57
Cacao	» »	309	370	5,589	9,099
Tea	» »	11	7	2,022	2,383
Coffee	» »	459	33	6,140	1,526
POLAND-DANTZIG					
Wheat	1000 centals	0	466	0	[illegible]
Wheat flour	» »	0	142	0	[illegible]
Rye	» »	43	765	0	[illegible]
Barley	» »	19	543	0	
Oats	» »	0	113	0	[illegible]
Maize	» »	0	0	16	
Rice	» »	9	68	24	[illegible]
Linseed	» »	0	0	0	
Cotton	» »	0	0	154	[illegible]
Wool	1000 lb.	95	0	2,482	4,20
Butter	» »	1,669	3,245	0	0
Cheese	» »	62	44	20	11
Cacao	» »	—	—	882	1,248
Tea	» »	0	0	269	227
Coffee	» »	2	0	1,146	1,021
UNITED KINGDOM					
Wheat	1000 centals	118	224	9,619	8,381
Wheat flour	» »	89	215	757	758
Barley	» »	...	0	1,803	1,60
Oats	» »	...	2	87	3
Maize	» »	244	162	5,632	6,
Rice	» »	5	27	260	1
Linseed	» »	...	0	384	47
Cotton	» »	67	84	646	1,1
Wool	1000 lb.	14,352	20,369	37,384	33,3
Butter	» »	567	774	88,518	82,60
Cheese	» »	485	639	29,926	19,53
Cacao	» »	326	348	1,656	3,832
Tea	» »	4,641	5,600	49,829	46,751
Coffee	» »	564	1,036	1,100	1,243
SWITZERLAND					
Wheat	1000 centals	0	0	482	733
Rye	» »	0	0	0	15
Barley	» »	0	0	102	81
Oats	» »	0	0	286	25
Maize	» »	0	0	120	9
Rice	» »	0	0	18	2
Cotton	» »	2	0	31	[illegible]
Wool	1000 lb.	29	40	1,045	1,57
Butter	» »	0	0	13	[illegible]
Cheese	» »	3,060	2,509	190	22
Cacao	» »	0	0	344	32
Tea	» »	2	2	104	115
Coffee	» »	0	0	2,008	2,101
BRAZIL					
Coffee	1000 lb.	107,542	149,659	—	—

a) Wool greasy. — b) Wool scoured.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

27-IX-1937

***The radio communiqués of the International Institute of Agriculture will be transmitted between 7.35 and 7.39 p. m. on the following days: Thursday,* English; *Friday,* German; *Saturday,* Spanish; *Tuesday,* Italian; *Wednesday,* French.**

They will be broadcast from Rome 1 (420.8 m.) and Rome 2 RO (25.4 m.).

The hour of broadcasts is in Central European Time, which is one hour ahead of Greenwich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = *excellent,* 2 = *good,* 3 = *average,* 4 = *bad,* 5 = *very bad; France:* 100 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *average,* 30 = *bad; Estonia, Lithuania, Poland, Romania and Sweden;* 5 = *excellent,* 4 = *good,* 3 = *average,* 2 = *bad,* 1 = *very bad; Netherlands:* 90 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *below average; Portugal:* 100 = *excellent,* 80 = *good,* 60 = *average,* 40 = *bad,* 20 = *very bad; Switzerland:* 100 = *excellent,* 90 = *very good,* 75 = *good,* 60 = *fairly good,* 50 = *average.* 40 = *rather bad,* 30 = *bad,* 10 = *very bad; U. S. S. R.:* 5 = *good,* 4 = *above the average,* 3 = *average,* 2 = *below average,* 1 = *bad; Canada:* 100 = *crop condition promising a yield equivalent to the average yield of a long series of years; United States:* 100 = *crop condition which promises a normal yield; Egypt:* 100 = *from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed:* 100 = *crop condition which promises a yield equal to the average of the last ten years.*

See latest information at the end of the Crop Report

VEGETAL PRODUCTION

World Wheat Supplies and Requirements

After three years of very poor crops, which had greatly reduced the world reserves of wheat, the 1937 production is reported as very good on the whole and larger than the probable entire consumption.

As we usually do at this time of the year, we present a general survey of the world statistical position of wheat in the present commercial season 1 August 1937 to 31 July 1938. This survey aims mainly at determining by how much the 1937 crop exceeds the probable consumption, what increase it will bring to the stocks existing on 31 July 1937 and what will be the total stocks on 1 August 1938.

I. — THE 1937 WHEAT CROP.

In spite of the generally unfavourable season, wheat this year has yielded a full production as a result of the increase in acreage cultivated. Wheat in fact has covered in 1937 an acreage above all maximums hitherto recorded. The tendancy to increase the acreage in wheat has been more or less general in all continents. Actually, however, almost the entire world increase is constituted by the extension of the wheat fields of North America and particularly those of the United States. The expansion is much less considerable in the other continents, and though an extension has taken place in Australia, South America and Africa, the reverse is the case in Asia and Europe, where a decrease of acreage is to be noted. For the European countries it is true to say that the sudden reduction this year is due largely to Spain. For this country, in default of any reliable estimate a conjectural estimate has been made, which shows a heavy decrease compared with last year.

World Wheat Area 1).

(million acres).

YEARS	Europe 2)	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R.
Average 1926-1930	71.4	85.7	22.7	44.7	11.1	14.6	250.2	75.1
1931	75.9	85.0	19.5	49.2	11.9	15.1	256.6	91.2
1932	75.4	86.5	21.0	49.7	12.4	16.1	261.1	85.3
1933	77.8	76.9	22.2	47.2	11.9	15.1	251.1	82.0
1934	77.6	68.9	21.0	50.4	12.6	12.8	243.3	87.0
1935	78.8	76.9	15.6	49.4	14.1	12.1	246.9	91.7
1936	78.1	75.9	19.5	49.9	12.6	12.6	248.6	..
Forecast 1937	75.4	95.4	20.3	49.4	12.8	14.1	267.4	.

1) Area harvested not including China, Iran and Iraq. — 2) Not including U.S.S.R.

On the whole the area cultivated to wheat in the world, excluding the U. S. S. R., China, Iran and Iraq, appears to be about 7 per cent. larger than last year and about 6 per cent. above the previous five-year average.

World Wheat Production 1)

(Million bushels).

YEARS	Europe 2)	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R
Average 1926-1930	1,342	1,315	300	518	117	164	3,756	836
1931	1,437	1,277	263	570	131	197	3,875	753
1932	1,489	1,213	286	503	140	225	3,856	742
1933	1,746	849	345	572	124	186	3,820	1,018
1934	1,549	816	290	554	153	140	3,502	1,117
1935	1,576	922	198	577	137	151	3,561	1,132
1936	1,484	873	297	596	115	157	3,522	...
Forecast 1937	1,510	1,090	310	630	133	167	3,840	..

1) Not including China, Iran, Turkey and Iraq. — 2) Not including U. R. S. S.

The estimate of world production of wheat in 1937 that can be made at this time of the year is based on provisional figures for nearly all the countries of the northern hemisphere and on approximate forecasts for the countries of the southern hemisphere, where the harvest will be gathered in a few months' time. This estimate is therefore further subject to important revisions as the actual results of the harvests become known.

The provisional figures now available indicate a world production in 1937 greater than that of last year for all the continents. On the other hand, the average for the five-year period 1931-32 to 1935-36 is not exceeded except in North and South America and Asia, the 1937 harvests are lower than this average in Europe, Africa, and Oceania.

To judge the degree of approximation to be expected in estimates made in October of the world production of wheat, it is to be borne in mind that owing to the large number of factors of compensation contained in the provisional estimate, it may be thus fairly near to the final estimate. The experience of previous years shows that the October estimate is usually lower than the final estimate, and that, on the other hand, the percentage difference has fallen continously in the last few years, it was about 6 per cent in 1933, 4 per cent in 1934, 2 per cent in 1935, and a little more than 1 per cent. in 1936.

Forecasts and final data of world wheat production.

(in million bushels)

STATES	1933 crop		1934 crop		1935 crop		1936 crop	
	Forecasts (October 1933)	Final data	Forecasts (October 1934)	Final data	Forecasts (October 1935)	Final data	Forecasts (October 1936)	Final data
Europe	1,670	1,746	1,477	1,549	1,540	1,576	1,450	1,484
North America	808	849	786	816	900	922	873	873
South America	268	345	294	290	225	198	295	297
Asia 1)	565	572	546	554	580	596	600	596
Africa	114	124	136	153	130	137	114	115
Oceania	195	186	147	140	140	151	138	157
TOTAL	**3,620**	**3,820**	**3,386**	**3,502**	**3,515**	**3,561**	**3,470**	**3,522**

1) Figures for October forecasts slightly modified by the inclusion of figures for Turkey and Manchukuo

The provisional figures supplied by the various countries of the northern hemisphere, figures on which the 1937 estimate is based, appear to have reflected in a fair reliable way the various seasonal influences and on the whole they should be subject to only small changes. We think however that in contrast to the usual trend, these corrections will tend to slightly lower rather than to raise the present provisional estimates since it appears to us that some estimates have not yet taken completely into account the unfavourable effect of the weather conditions of the late spring and the summer. This consideration does not, however, take from the present estimates their actual value which appears to us sufficient to form a fairly accurate basis for the examination of the supply and of demand for wheat during the current season, always with due allowance of course, for changes to which the harvests of the Southern hemisphere will still be subject and of which no reliable forecast can be made.

It has already been noted that the good harvest this year is due principally to the large increase of the area under wheat. Actually, the season was unfavourable in almost all the continents. In Europe the winter was too mild and rainy with but small falls of snow and the crops being poorly protected suffered from the frosts which were infrequent but severe; the spring, though on the whole dry, was marked towards the end by sharp changes of temperature and periods of heat, while the summer was misty, damp, and stormy. In North America the prolonged summer drought endangered the Canadian harvest and damaged that of spring wheat in the United States. In North Africa, finally, the crops suffered equally from drought and scirocco. The unit world yield indicates clearly the effect of adverse weather conditions as it is very low and is almost the same as that of last year, which was one of the worst recorded up to that time.

Unit Yields of Wheat (1).

(bushels per acre).

YEARS	Europe	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S S.R
Average 1926-1930	18.8	15.3	13.2	11.6	10.5	11.2	15.0	11.1
1931	18.9	15.0	13.5	11.6	11.0	13.0	15.1	8.3
1932	19.8	14.0	13.6	10.1	11.3	14.0	14.8	8.7
1933	22.4	11.0	15.5	12.1	10.4	12.3	15.2	12.4
1934	20.0	11.8	13.8	11.0	12.1	10.9	14.4	12.8
1935	20.0	12.0	12.7	11.7	9.7	12.5	14.4	12.3
1936	19.0	11.5	15.2	11.0	9.1	12.5	14.2	...
Forecast 1937	20.0	11.4	15.3	12.8	10.4	11.8	14.4	. .

1) Calculated on the area harvested. — 2) Not including U S S R, China, Iran and Iraq.

Consideration of the division of wheat production between the exporting countries and the importing countries shows that the former, taken as a whole, have obtained a very heavy output; in spite of the decline in Canada the total output of these exporting countries is about 9 per cent. greater than that of the previous year, and 7 per cent. greater than the average of the previous five years. The group of importing countries was less fortunate; their total production although eight per cent. greater than last year remains about five per cent. lower than the average for the last five years.

II. — EXPORTABLE SUPPLIES OF WHEAT.

The export surplus of the various exporting groups, is represented by the difference between total supplies existing in each country and internal requirements for consumption and for the necessary minimum end of season carry-over.

The exportable supplies from the various surplus producing countries are arrived at as follows.

North America. — The United States after four years in succession of wheat crops insufficient for domestic needs had in 1937 an abundant output which replaced them in the ranks of exporting countries. The output is estimated at 887 million bushels while domestic consumption is annually about 660 million bushels. The new harvest added to the stocks existing at the beginning of the season (122 million bushels) makes a total supply of about 1,010 million bushels which leaves an exportable surplus of about 240 million bushels after deducting the amount necessary for normal internal requirements. This year, however, an appreciable increase of domestic consumption above the normal level is to be expected as a result of the generally bad quality of the grains and their poor specific weight; an abnormal proportion of the 1937 harvest seems unsuitable for milling and the amount of grain necessary to produce a barrel of flour appears to appreciably exceed the average. It therefore seems improbable that the export surplus of the United States will exceed 180 million bushels of which about a half would actually be exported, the other half remaining in the country to increase the minimum end of season carry-over.

Canada. — Here the drought has caused very serious losses. The first estimate of the output gives a figure of 188 million bushels and even this is considered optimistic by certain sources of information. The quality is, on the other hand, excellent. The stocks of Canadian wheat including those in store in United States territory amounted on 1 August 1937 to 37 million bushels, a figure which is among the lowest registered for several years; the total supplies therefore amount to only 225 million bushels. If the amount needed for domestic consumption is taken to be 100 million bushels and the minimum carry-over to be 27 millions the supply of Canadian wheat available for export is scarcely 100 million bushels which is an exceptionally low figure for this country which, for a long time, has held first position as a supplier of wheat. Canada would thus have this year an export surplus smaller than half that of last year (220 million bushels), and a little over the quarter of the average of the last ten seasons.

Argentina and Australia. — The quantities available for export from these two large exporting countries of the southern hemisphere can only be calculated conjecturally on the basis of crop forecasts that can be made at the present moment according to the crop condition several weeks before the harvest. They are indeed susceptible to very considerable modifications if the forecasts are not realised.

In Argentina the beginning of the season was unfavourable, the consistent drought having hindered work and in some cases prevented sowings; the area sown exceeded only slightly that of last year and the crops have also suffered from the lack of humidity. However, since the middle of September, good general rains have fallen frequently and have again made probable a fairly large harvest. If the season is normal in November and December a yield a little over the average can be expected with an output of about 260 million bushels against 248 million bushels last year and an average of 226 million for the five preceeding years. If this forecast is realised the new Argentine crop will leave after deduction of 100 million bushels for domestic consumption, an export surplus of 160 million bushels to which are to be added the 22 million bushels of exportable stocks of the old harvest existing on 1 August in this country. The total export supply of Argentine wheat for the 1937-38 season would thus be about 180 million bushels, a figure almost the same as that of the 1936-37 season and the average of the previous five seasons.

The official forecast of the Australian crop, which is normally communicated to the Institute at the middle of October, has been delayed this year presumably because the state of the crops was, at this time, fairly irregular in various regions by reason of the drought and the hot winds, and because the crop returns might have varied considerably according to whether the rains, of which the crops were in urgent need, immediately fell or not. Very recent telegrams say that beneficial rains have fallen almost throughout the principal wheat regions; and although these rains are somewhat late the prospects of the Australian output have been appreciably improved. We are thus led, taking into account the considerable increase (11 per cent.), in the area sown to wheat, to forecast a production slightly above that of last year, at 160 million bushels against 150 million in 1936-37 and an average of 172 millions for the previous five years If this estimate proves fairly accurate, Australia would be able to supply from the new crop an export surplus of about 105 million bushels taking into account a domestic consumption of 55 million. Adding to the export surplus of new wheat stocks of old wheat existing on 1 August which are estimated at about 30 million bushels the export supply of Australian wheat for the 1937-38 season would amount to 135 million bushels and would thus exceed slightly that of the past season, but would remain considerably below the average for the preceeding five years (166 million).

India — The crop harvested in India during the months of April and May 1937 was abundant and this country which had been practically absent from the international wheat market for several years recommenced, during the course of the past season, exports of wheat, the rise of the price of wheat having been a new incentive to the export of considerable quantities. A part of the surplus of the 1937 harvest has been already exported during the months of June and July last and it has thus been included in the statistics relating to the 1936-37 season. We estimate the balance at 15 million bushels, not taking into account the modifications which might be caused by the results of the approaching harvest of other food stuffs in this country and by the prospects of the new wheat crop to be harvested in the spring of 1938.

U. S. S. R. — No official estimate of the Soviet crop for 1937 has been published up to the present and moreover the figures for the 1936 output have not yet been communicated. By reason of the very favourable season from which the crops benefited everywhere during the spring and early summer it seems that in 1937 the wheat production is very abundant; it follows, however, the poor crop of last year which necessitated drawing considerably on the country's wheat reserve. The new 1937 output will certainly leave after the needs of domestic consumption and the replenishment of stocks have been satisfied, a considerable export surplus. The estimate of this surplus is a matter of pure conjecture on account of the absence of statistical data and since, above all, the volume of Soviet exports does not always bear relation to the resources of the country but is often determined by the exigencies of the commercial policy and of the internal and foreign policy of the Government. By reason of the abundant 1937 harvest and of the fairly heavy exports that have already taken place during the first weeks of the current season we estimate the export supply from the U. S. S. R. at about 40 million bushels for the whole 1937-38 season; a very much greater amount could not be absorbed by the international market without seriously affecting it

European exporting countries. — The four Danubian countries obtained in 1937 widely different results from one country to another. Romania had an excellent crop, six per cent. greater than that of the previous year, which was already a maximum. Bulgaria and Yugoslavia have had abundant harvests, much greater than the average, but which remained distinctly below the excellent harvest last year. Hungary, Poland and Lithuania, on the other hand, had poor harvests, lower than that of last year and lower than the average. On the basis of estimates available at the present time the output of this group of countries, taken as a whole, is 420 million bushels, a figure lower than the record of last year (470 millions) but still considerably above the average for the previous five years (384 millions). The output of rye, which is consumed equally with wheat in Poland, Hungary, and Lithuania, was very poor in these three countries Maize is largely consumed as a human food in Bulgaria, Yugoslavia and Romania, and the harvest of this crop has been excellent in Bulgaria and more especially in Yugoslavia but under average in Romania. Further, the stocks of wheat remaining after the excellent harvest of last year in these various countries apear slightly above normal. Taking into account these various factors we estimate at 74 million bushels the exportable surplus of this group of countries; the exports will be provided in large part by Romania and the remainder by Hungary, Yugoslavia, and Bulgaria. The total exports of European exporting countries were 94 million bushels last year and 38 million on average for the last five years.

North Africa and other exporting countries. — Of the three exporting countries of North Africa, Algeria, and Tunis have had this year an excellent output of wheat, while Morocco has again, as in 1936, had a half crop by reason of the drought and severe heat which have seriously checked crops. The output of barley has been small in Algeria and Morocco and only moderate in Tunis. The stocks of old harvests have, after the poor output of last year, been practically exhausted in all three countries. All these conditions point to a very small export of wheat from North Africa during the 1937-38 season. Taking into account, however, the greater ease of marketing in France we estimate the export surplus from North Africa at 12 million bushels. Adding to this figure the probable exports from the other minor exporting countries (Turkey, Chili, Uruguay, Iraq, etc.) the estimate for the exportable supplies from these various countries is about 20 million bushels.

Taking these various estimates in total it can be seen that the quantities which could be put at the disposal of importing countries during the 1937-38 season are estimated at 770 million bushels, a figure 80 millions higher than that of last year, but distinctly lower than the average for the 5 preceeding years (1,060 millions).

Exportable supplies of wheat.

(Million bushels)

SEASONS	Canada	United States	Argentina	Australia	U.S.S.R 1)	India 1)	Danub countries 1) 2)	North Africa 1) 3)	Afloat	Totals
Average 1926-27 to 1930-31	375	270	225	125	33	0	43	11	41	1,123
1931-32	319	420	173	192	65	3	84	27	38	1,321
1932-33	452	330	182	191	17	0	12	21	30	1,235
1933-34	367	220	237	158	35	1	36	23	32	1,109
1934-35	352	55	239	151	2	1	26	36	35	897
1935-36 . .	350	20	103	136	29	2	34	26	18	718
1936-37	220	—	184	129	4	19	94	22	21	693
Forecast 1937 38	100	180	180	135	40	15	74	20	26	770

1) Exports — 2) Including Poland and Lithuania — 3) Including the other minor exporting countries

The exportable supplies of the four large exporting countries taken together is, in spite of the heavy fall in the Canadian export surplus, higher by 60 million bushels than in 1936-37 while the total supplies of other countries are only a little over those of last year. In the case of the four large exporting countries the heavy fall in Canadian exports has been more than compensated by the return of the United States to the ranks of wheat suppliers, Australia and Argentina have supplies about equal to those of the past season. The total export surplus of these two countries remains, however, lower than in the ten years preceeding 1935-36 with the exception of 1929-30 and 1925-26. The exporters of minor importance have, in total, exportable supplies much above normal; only in 1930-31 and 1931-32 out of the last ten years have they had exports greater than those forecast for the current season.

III. — WHEAT REQUIREMENTS IN IMPORTING COUNTRIES.

European importing countries. — The estimate of the wheat crop in this group of countries is still approximate by reason of the absence of official estimates for certain of these countries that are not the least in importance, namely

France, Spain, Denmark, etc. The available estimates point to an aggregate crop of about 1,090 million bushels which is on the whole fairly good since it is 76 millions greater than in 1936 and only 90 millions below the average for 1931-35 which, including three years of record production in these countries, is a very high average. The increase in output over last year is due in large part to the harvest obtained in Italy, Greece, Portugal, Switzerland, and the Baltic and Scandinavian countries. In Germany, Austria and Belgium the output is given as about the same as last year while in France, the United Kingdom, Netherlands, and Czechoslovakia crops are mediocre. For Spain, in spite of the more favourable weather conditions this year as compared with last year the production is roughly estimated be at about the same low level recorded in 1936, taking into account the effects which the civil war has had upon agricultural work in this country. In general, it appears that production is very different from one country to another, being good and even excellent in certain of them and moderate and even bad in others.

The harvest of other food crops is also very different from one country to another. Rye production was moderate in the principal producing countries but good in the Baltic countries. Potato production has been very good in Germany and Czechoslovakia but not very satisfactory in France and Netherlands Italy has had an abundant maize crop. The stocks of wheat from previous harvests remained fairly low in most cases, exceptions being in France and Czechoslovakia where they were still above normal.

To all these factors influencing the probable import demand by Europe must be added the political and monetary factors which affect international trade Taking into account all these factors we have estimated the probable import demand by Europe at 420 million quintals, that is slightly below the figure of net imports for the past year

The United Kingdom and the Irish Free State would, according to our calculations, absorb more than half of the probable European imports, that is about 220 million bushels out of the total forecast of 420 million bushels, the demand from Belgium and Netherlands will remain about 70 million bushels and a similar amount will probably represent the total demand of France, Germany, and Switzerland, the remaining 60 million bushels will be divided between the other countries of Europe.

In our opinion, no country will this year be obliged to export amounts exceeding domestic needs as happened last year in Czechoslovakia and in the preceding years in France, Germany, Sweden, Portugal and Latvia. On the contrary, all will be obliged to import more or less considerable amounts with the possible exception of Sweden and Latvia.

The estimate of 420 million bushels of net European imports in 1937-38 represents a very moderate amount as compared with the imports of the seasons prior to 1932-33 when it fluctuated between a minimum of 515 millions and a maximum of 660 millions per year. In the following table are grouped figures for the production, probable imports and apparent consumption, in Europe during the current season compared with figures for the preceeding years.

Production and apparent consumption of wheat in Europe.

(million bushels).

YEARS	Importing Countries			Exporting Countries (1)			Total Europe		
	Production	Net Imports	Apparent consumption	Production	Net exports	Apparent consumption	Production	Net imports	Apparent consumption
Average 1926-27 to 1930-31 .	953	620	1,573	389	43	346	1,342	577	1,919
1931-32.	975	615	1,590	462	84	378	1,437	531	1,968
1932-33	1,209	449	1,658	280	12	268	1,489	437	1,926
1933-34.	1,290	395	1,685	456	36	420	1,746	359	2,105
1934-35	1,213	358	1,571	336	26	310	1,549	332	1,881
1935-36 .	1,190	352	1,542	386	34	352	1,576	314	1,890
1936-37	1,014	438	1,452	470	94	376	1,484	344	1,828
1937-38 (Forecast)	1,090	420	1,510	420	72	348	1,510	348	1,858

1) Bulgaria, Hungary, Romania, Yugoslavia, Poland and Lithuania — 2) Rounded estimate.

Extra-European importing countries — The total imports of wheat by extra European countries, which normally oscillated between 160 and 200 million bushels per year, has been reduced in the course of the last two seasons, in which it was only maintained at a little above 150 million bushels by the exceptional import requirements of the United States which had a net import of 33 million in 1935-36 and of 19 million in 1936-37 Among the countries, which a few years ago represented a valuable outlet for the disposal of wheat from exporting countries, several have become completely independent from abroad (Egypt, Union of South Africa, Syria and Lebanon and Mexico), others have greatly diminished their demand (China, Manchukuo and Japan), mainly as a result of the considerable development that most of them have made in their internal production

Egypt and Syria and Lebanon this year obtained a large crop, and they will even be able to export part of their produce abroad The Union of South Africa, where production is reported as rather poor, can count on the stocks of previous harvests to ensure supplies in 1937-38, without having recourse to importation. Manchukuo and Japan had this year a much better production than last year and their demand will be low, taking also account of the difficulties regarding the balance of international payments. China, despite a rather poor crop does not seem in a position to import considerable quantities from abroad. Furthermore the import requirements of the United States have ceased, with the return of this country to its position of exporter. Demand from extra-European importing countries will thus be represented almost solely by regular importers such as Brasil, Peru, Netherlands Indies, Malay, the Philippines and many other countries which, not having a large internal production, import every year almost equal quantities of wheat.

We estimate thus that the extra-European demand for wheat during the present season can only be very much below that of last year. Compared with the 164 million, which was the import total of this group of countries in 1936-37, we estimate the import requirements for 1937-38 at 115 million.

World import requirements — In conclusion, the quantity necessary to cover the probable import requirements during the 1937-38 season should be, according to the information and estimates at present known, 420 million bushels for Europe and 115 million for the extra-European countries, making a total of 535 million. The world demand would thus show a considerable decrease compared with last year (602 million bushels); it would be slightly larger than that of the 1935-36 season, which was the smallest recorded for a long series of years, and would be almost equal to that of 1934-35 but would be very much lower than in any other post-war season.

IV. — SUPPLIES AND REQUIREMENTS OF WHEAT.

According to all the information available the statistical situation of wheat in the world during the 1937-38 season is as follows.

The world production of wheat, excluding the U. S. S. R. and China, as a result of the large increase in acreage in 1937 was large in spite of the rather unfavourable season, it is 9 per cent. higher than the very poor crop of last year. All continents have obtained better results than in 1936, but most of the increase is due to the United States. The production of the U. S. S. R. is reported as very large, that of China on the other hand is poor, but no official estimates for these two countries are yet available.

In the exporting group of countries the total production, despite the deficit in Canada, is considerably larger than that of last year and the average, as a result, especially, of the good results obtained in the United States, the Danubian countries, India and Turkey. Yields anticipated for Argentina and Australia are quite good.

The total production of the importing countries was less successful than that of the exporting countries, for though it considerably exceeds the production of 1936, yet it is somewhat below the previous five-year average.

Taking into account the old-crop stocks existing in exporting countries at the beginning of the present season, the world exportable surplus in 1937-38, estimated at 770 million bushels, is about 80 million bushels, or 11 per cent. larger than last year, which had the smallest recorded for many years; almost the whole amount consists of the surplus from the new 1937 harvest, the exportable stocks from previous crops (105 million bushels) supplying only a very small proportion this year.

The probable requirements of importing countries on the other hand are considered smaller than in 1936-37; for the European demand a total of 420 million bushels, or 18 million less than last year is forecast; the demand of extra-European importing countries is forecast at 115 million bushels, which is 49 million smaller than last year's estimate. Total world import requirements are estimated at 535 million bushels, against 602 million imported in 1936-37.

In comparing the requirements of importing countries in the present season, namely 535 million bushels, with the quantity available for export from exporting countries, it will be seen that the exportable surplus available from the 1937 crop (665 million) exceeds the probable demand of importing countries by about 130 million, which will go to increase the stocks carried over to next season.

World production, trade and stocks of wheat.

(Million bushels).

SEASON	World Production				World exportable supplies			World imports	World exportable end-of season stocks
	Total 1)	Exporting countries	Importing countries	U S.S.R	Total	Aggregate excluding U S S R	U S S R		
Average 1926-27 to 1930-31 . .	3,756	2,612	1,144	836	1,123	1,090	33	795	430
1931-32 .	3,875	2,686	1,189	753	1,321	1,256	65	809	514
1932-33 . . .	3,856	2,451	1,405	742	1,235	1,218	17	629	609
1933-34 . .	3,820	2,320	1,500	1,018	1,109	1,074	35	545	564
1934-35	3,502	2 098	1,404	1,017	897	895	2	533	371
1935-36	3,561	2,146	1,415	1,132	718	689	29	502	245
1936-37 . . .	3,522	2,304	1,218	...	693	689	4	602	105
Forecast 1937-38	3,840	2,535	1,305	...	770	730	40	535	235

1) Excluding U S S R, China, Iran and Iraq

From these data, it may be concluded that exportable stocks, which continued to decline each year since 1 August 1933, when they reached their maximum, until they touched their minimum on 1 August 1937, will undergo an increase of 130 million bushels in the course of the 1937-38 season. On 1 August 1938 stocks will be about 235 million, or at a level approximately as high as that regarded as normal before the great wheat crisis. As the 1937 production provided a surplus over consumption requirements, despite a generally unfavourable season but as a result of the extension of the acreage under cultivation, it must be considered probable that there will be a further accumulation of stocks next season, if the area under wheat remains about the same as it was in the past agricultural year.

G. CAPONE.

APPENDIX

In the following notes are given the detailed data on which the estimates contained in the present study are based

I. — EXPORTABLE STOCKS REMAINING FROM PREVIOUS PRODUCTION.

The exportable stocks, residual from the previous production, in existence on 1 August, compared with those for the preceding five seasons, have been calculated, for the four large exporting countries only, in the manner indicated below The stocks in existence in the other exporting countries are excluded because there is an absence of data for exactly estimating them.

UNITED STATES — The official statistics record the stocks of home grown wheat in the United States on 1 July In addition to these stocks there must also be taken into account those of U S A grain admitted free into Canada and lying there on 1 July. These were as follows in million bushels.

Stocks	Average 1926-30	1931	1932	1933	1934	1935	1936	1937
On farms . .	30	38	94	83	62	41	44	22
In interior mills and elevators	34	30	42	64	48	32	22	12
Commercial wheat in store	55	204	168	124	81	22	25	16
In merchant mills and elevators and stored for others . .	43	41	79	107	83	50	51	53
Flour in terms of wheat .	18	14	16	15	20	18	21	19
TOTAL . . .	186	327	392	393	294	(1) 168	163	(2) 122
U S A wheat in bond in Canada	3	15	16	4	0	0	0	0
TOTAL STOCKS . . .	189	342	408	397	294	168	163	122
Less minimum carry-over	105	105	105	105	105	105	105	105
EXPORTABLE STOCKS . .	84	237	303	292	189	63	58	17

(1) Exclusive of Canadian wheat in bond but including 1.5 million bushels of wheat of foreign origin — (2) Including 12 million bushels of the new wheat crop

CANADA — Official statistics record the subjoined estimates of residual stocks of wheat and flour in Canada on 1 August. In addition to these stocks there must also be taken into account those of Canadian grain admitted free into the United States and lying there on 1 August. They amounted to the following quantities in million bushels.

	Average 1926 30	1931	1932	1933	1934	1935	1936	1937
In Canada	75	134	132	212	194	203	109	33
In U. S. A.	12	6	5	7	10	11	19	4
TOTAL STOCKS . . .	87	140	137	219	204	214	128	37
Less minimum carry-over	27	27	27	27	27	27	27	27
EXPORTABLE STOCKS . .	60	113	110	192	177	187	101	20

ARGENTINA. — Taking into account exports and stocks on 1 January the exportable stocks on 1 August of each year were as follows in million bushels.

	Average 1926-30	1931	1932	1933	1934	1935	1936	1937
Exportable stocks	62	49	33	50	90	57	32	22

AUSTRALIA. — Taking into account exports and stocks on 1 December exportable stocks on 1 August are indicated below in million bushels.

	Average 1926 30	1931	1932	1933	1934	1935	1936	1937
Exportable stocks . . .	26	49	38	43	73	45	34	31

The aggregate figures of the exportable stocks at the end of the season for the four large exporting countries as well as those of the floating supplies are as follows

Exportable wheat stocks at end of season.

(million bushels).

Years	United States 1)	Canada 2)	Argentina	Australia	Quantity afloat	Totals
Average 1926-30	84	60	62	26	41	273
1931	237	113	49	49	38	486
1932	303	110	33	38	30	514
1933	292	192	50	43	32	609
1934	189	177	90	73	35	564
1935	63	187	57	46	18	371
1936	58	101	32	33	21	245
1937	17	10	22	30	26	105

1) Including domestic wheat in store in Canada. — 2) Including domestic wheat in store in the U. S A.

II. — CONSUMPTION OF THE EXPORTING COUNTRIES.

In the following tables are given for each country the data on which the figures of home consumption in the four large exporting countries have been based.

NORTH AMERICA. — On the basis of the official data of production, commerce and stocks, wheat consumption in Canada and the United States in recent seasons may be calculated as follows in million bushels.

Canada	Average 1926/27 to 1930/31	1931/32	1932/33	1933/34	1934/35	1935/36	1936-37
Production	436	321	443	282	277	276	229
+ Interior stocks on 1 August	75	134	132	212	194	203	109
= Available supplies on 1 August	511	455	575	494	470	485	338
— August-July net exports	295	206	263	193	164	253	194
— Interior stocks on 31 July	95	132	212	194	203	109	33
= Consumption	121	117	100	107	103	123	111

United States	Average 1926/27 to 1930/31	1931/32	1932/33	1933/34	1934/35	1935/36	1936/37
Production	866	942	757	552	526	626	626
+ Interior Stocks on 1 July	186	327	392	393	294	167	163
= Available supplies on 1 July	1,052	1,269	1,149	945	820	793	789
— July-June net exports	161	126	35	28	(1) 1	(1) 28	(1) 24
— Interior stocks on 30 June	210	392	393	294	167	163	122
= Consumption	681	751	721	623	656	658	691

(1) Net imports.

ARGENTINA. — The consumption in the last five years is estimated as follows:

	Average 1926 30	1931	1932	1933	1934	1935	1936
Million bushels	85	94	96	92	102	91	97

AUSTRALIA. — On the basis of official data for production, trade and end of season stocks the consumption in the last five years is estimated as follows.

	Average 1926 30	1931	1932	1933	1934	1935	1936
Million bushels	50	52	47	61	63	55	54

III. — EXPORTS.

The quantities of wheat (with flour reduced to the corresponding equivalents in grain) exported during the last seasons (1 August-31 July) from all the principal exporting countries are given in the following table. The data refer to net exports, that is, exports less imports.

World wheat exports.

Country	Average 1926/27 to 1930/31	1931/32	1932/33	1933/34	1934/35	1935/36	1936/37
Canada	293	208	259	190	164	245	209
United States	153	120	42	32	(1) 4	(1) 33	(1) 10
Argentina	164	140	132	147	181	69	161
Australia	98	154	148	84	106	100	98
India	(1) 1	3	1	(1) 1	1	2	19
Bulgaria	2	11	3	4	0	1	8
Hungary	23	18	7	29	13	17	25
Poland and Lithuania	(1) 3	3	1	2	5	9	5
Romania	8	37	0	0	4	6	38
Yugoslavia	10	15	1	1	4	1	18
Turkey, Iran and Iraq	0	4	1	3	6	2	12
Algeria	4	6	9	12	13	10	6
Tunisia	4	9	5	0	5	4	(1) 1
Morocco	3	8	6	8	8	5	(1) 3
Chile and Uruguay	(1) 1	(1) 1	(1) 3	(1) 2	4	5	4
TOTALS	762	736	614	513	514	476	603
U. S. S. R.	33	65	17	35	2	29	4
WORLD EXPORTS	795	801	631	548	516	505	607

(1) Net imports, not included in the totals.

Taking account, however, of the fact that for several years part of the exports from Canada and the United States has not actually been shipped overseas but has passed from one to the other of these countries to remain in store at its destination, there have been deducted from the total exports above indicated, the amounts of which are increased from the beginning to the end of each season, the stores of Canadian wheat in the United States and those of United States wheat in Canada. On the other hand the inverse operation has been carried out when the amounts stored have decreased.

IV. — NET IMPORTS OF WHEAT IN EUROPE

The data of net imports of the various European importing countries, are given in the following table The figures of wheat include flour reduced to its equivalent in grain

Net imports of wheat into Europe (including flour in terms of wheat)

(Million bushels)

COUNTRIES	Average 1926-27 to 1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
United Kingdom	219	240	215	218	200	205	198
Irish Free State	18	20	18	20	17	15	12
Germany	67	23	5	1) 4	10	1) 0	32
Austria	16	14	13	10	10	7	10
Belgo Luxemburg	43	47	39	43	40	39	30
Denmark	11	17	12	13	19	9	6
Spain	4	11	0	0	0	0	2) 7
Finland	5	4	4	4	4	4	4
France	47	77	33	17	1) 18	8	8
Estonia and Latvia	3	2	0	0	1) 2	1) 2	1
Greece	21	24	20	11	15	15	22
Italy	77	33	11	9	12	6	58
Norway	7	9	9	9	9	8	8
Netherlands	31	31	27	22	20	22	21
Portugal	5	3	2	1	1	1) 4	0
Sweden	7	7	3	1	1) 2	1) 2	0
Switzerland	18	26	23	18	19	17	18
Czechoslovakia	18	25	12	0	1	2	1) 9
Malta, Albania, etc	3	2	3	3	3	3	3
Total	*620*	*615*	*449*	*395*	*358*	*352*	*438*

1) Net exports deducted from the totals — 2) Rough estimate

V. — EUROPEAN APPARENT CONSUMPTION OF WHEAT

The following figures on apparent consumption of wheat in Europe have been obtained by adding to the interior production of each country the net imports (of wheat and flour in terms of wheat) without taking occount of variations of stocks between the beginning and the end of each year

Apparent consumption of wheat in the European importing countries

(in millions bushels)

	Average 1926 27 to 1930 31	1931 32	1932 33	1933 34	1934 35	1935 36	1936 37
United Kingdom	267	278	259	280	269	270	253
Irish Free State	20	20	19	22	21	22	20
Germany	191	179	189	201	177	171	194
Austria	28	25	25	25	23	22	23
Belgo Luxemburg	58	61	56	59	58	56	57
Denmark	21	27	23	24	32	24	18
Spain	147	145	184	138	187	158	129
Finland	6	6	6	7	7	9	9
France	318	341	366	379	321	293	264
Estonia and Latvia	7	5	7	9	10	7	9
Greece	33	35	37	39	40	42	43
Italy	300	278	288	307	245	288	283
Norway	8	9	9	9	10	10	11
Netherlands	37	38	40	38	37	38	37
Portugal	15	16	25	16	25	18	9
Sweden	24	24	27	28	26	22	22
Switzerland	21	30	27	23	25	23	22
Czechoslovakia	66	66	66	73	51	64	46
Albania, Malta etc	4	4	4	5	4	5	4
Total	1 571	1 587	1 657	1 682	1 568	1,542	1,453

VI. — EXTRA-EUROPEAN IMPORTS.

The imports of extra-European countries are calculated in a somewhat approximate fashion by taking the difference between aggregate exports and imports of European countries and also the quantities afloat at the beginning and end of each season It should be observed that the calculations do not make any allowance for loss in weight during transit or from handling at shipment and at discharge, for the consequences of sea accidents or for quantities consumed by crews and passengers. Thus the actual shipments to non-European countries are certainly below the quantities indicated by the following calculations It may, however, be assumed that the quantities which fail to reach their destination do not vary much from year to year, so that the procedure adopted may be adjudged generally as sufficiently exact.

The data forming the basis of this calculation are given below in million bushels:

	Average 1926-27 to 1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
World exports (including U.S.S.R.)	795	801	631	548	516	505	607
+ Quantity afloat at the beginning of the season	41	38	30	32	35	18	21
— Quantity afloat at the end of the season .	41	30	32	35	18	21	26
= World imports	795	809	629	545	533	502	602
— Quantity imported into European countries .	620	615	449	395	358	352	438
= Quantity imported by extra-European countries.	175	194	180	150	175	150	164

We have tried to obtain roughly in a more direct way the total net imports of the extra-European importing countries, by taking for all the countries not publishing monthly statistics the annual returns of foreign trade and from these we have calculated the arithmetic net average for two consecutive years, thus substituting for the statistics of the calendar year those of the nearest commercial season. For the countries publishing monthly commercial statistics we have retained the figures of the season 1 August to 31 July. The results of these calculations show that the divergences from the results obtained by the indirect method are smaller than might be supposed.

Aggregate approximate figures of net imports of wheat in the extra-European countries.

(million bushels)

Importing countries of:	Average 1926-27 to 1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
North America	19.1	15.1	15.1	15.8	1) 19.8	1) 48.5	1) 36.7
South America	44.5	42.3	43.0	45.6	45.6	47.8	49.6
Asia	68 0	107.7	97.0	66.9	69.8	42.6	34.9
Africa	24.3	17.6	9.6	8.8	11.8	9.9	18.4
Oceania	2.2	2.2	2.2	1.5	1.8	2.2	1.8
Total . . .	158.1	184.9	166.9	138.6	148.8	151.0	141.4

1) Including the net imports of United States.

Current information from various countries on wheat, rye, barley and oats.

Europe.

Germany· During September rainfall was, generally speaking, sufficient throughout the Reich and was distributed very evenly.

According to the most recent estimate the area cultivated to spelt this year is about 161,000 acres against 170,000 in 1936 and 256,000 on the average of the five years ending 1935, percentages 94 9 and 63 0 The corresponding production is estimated at about 2,262,000 centals against 2,118,000 and [illegible],153,000, percentages 106 8 and 71 7

The corresponding figures for meslin are as follows Area — 1,471,000 acres, 1,280,000 acres and 995,000 acres, percentages 114 9 and 147 8 Production – 24,819,000 centals (42,792,000 bushels); 20,709,000 (35,705,000) and 15,830,000 (27 294,000), percentages 119 8 and 156 8

Austria During September the weather was rather cool and wet In the higher districts snow-falls and the first night frosts were reported

The work of harvesting cereals was exceptionally prolonged as the result of wet weather in August and September, and considerable damage was done to the crops. Spring cereals, particularly oats, were surprised by snow which fell in the higher districts, so that the crop was harvested only at the end of September Wet weather and the lateness of the harvest caused a delay also in the work of preparing the land for winter cereals At the end of October only winter barley was sown in most of the country

According to the most recent estimate, production of meslin this year is about 319,700 centals (551,000 bushels) against 262,700 (452,900) in 1936 and 257,500 (444,000) on the average of the five years ending 1935, percentages 121 7 and 124 2

Belgium During September the weather was generally hot and sunny, except for some wet, cold days that occurred in the middle of the month

The preparation of the soil for winter sowing was actively pressed forward. The sowing of some rye and barley has already been accomplished

Bulgaria The variable but generally warm, dry weather of September favoured the threshing and harvesting of cereals Delay in the work of housing was caused in some parts of Sofia by heavy rain which fell during the first decade of the month

According to the most recent estimate, the area cultivated to meslin this year is about 201,200 acres against 180,900 in 1936 and 223,200 on the average of the five years ending 1935, percentages 111 2 and 90 2 The corresponding production is estimated at about 2,272,000 centals (3,918,000 bushels) against 2,133,000 (3,677,000 and 2,370,000 (4,087,000), percentages 106 5 and 95 9

Denmark: Area cultivated to meslin this year is 761,600 acres against 802,100 in 1936 and 810,100 on the average of the five years ending 1935 percentages 94 9 and 94 0.

Estonia· During the harvest and threshing weather conditions were on the whole satisfactory. Production of meslin this year is estimated at 1,920,600 centals (3,311,400 bushels) against 1,746,000 (3,010,400) in 1936 and 1,870,400 (3,224,800) on the average of the five years ending 1935, percentages 110 0 and 102.7

France: The second production estimates of cereals, published in the statistical tables above, are better than was indicated last month Yields per acre are better than

Area and production of wheat.

Countries	†) Area					†) Production							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	Aver = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany .	4,879	5,151	5,471	94.7	89.2	96,717	97,597	106,000	161,192	162,659	176,664	99.1	91.2
Austria	642	624	554	102.9	116.0	8,682	8,424	7,996	14,469	14,040	13,327	103 0	108.6
*Belgium . .	423	424	391	99 8	108.4	. .	9,692	9,254	...	16,153	15,424	...	...
Bulgaria	2,861	2,822	3,023	101.4	94.6	33,896	35,583	30,592	56,492	59,304	50,985	95 3	110.8
*Denmark	319	296	272	107 8	117 3	...	6,759	7,214	...	11,265	12,023	...	...
*Spain	..	10,768	11,261	.	...	...	72,896	96,204	...	121,490	160,337	...	...
Estonia .	166	162	140	102.7	119.2	1,664	1,460	1,398	2,774	2,433	2,330	114.0	119 1
Finland	242	215	99	112.4	245.0	3,594	3,265	1,509	5,989	5,442	2,515	110.1	238.1
*France . .	w) 12,772	12,712	13,276	—	—	. .	153,562	190,015	...	255,932	316,685	...	...
Greece . .	2,118	2,065	1,755	102 5	120.7	20,177	11,722	13,145	33,627	19,537	21,908	172 1	153 5
Hungary . .	3,784	4,029	3,932	93.9	96 2	41,997	52,674	45,891	69,994	87,788	76,483	79 7	91.5
*Irish Fr St.	...	255	70	..	...	...	4,704	1,690	...	7,839	2,817	...	. .
Italy .	12,820	12,693	12,260	101 0	104.6	177,609	134,744	160,287	296,009	224,568	267,140	131.8	110.8
Latvia . . .	339	319	295	106 2	114.6	4,042	3,163	3,597	6,737	5,272	5,995	127 8	112 4
Lithuania .	516	485	507	106 4	101 6	4,794	4,766	5,582	7 991	7,942	9,304	100 6	85 9
Luxemburg	45	45	34	100 0	131.2	714	642	518	1,190	1,070	863	111.2	138 0
Malta . .	9	10	9	95.9	99.3	196	141	165	326	236	274	138 6	119.0
Norway	79	75	38	106 2	208.5	1,514	1,257	620	2,524	2,094	1,034	120.5	244 1
Netherlands.	320	374	315	85 6	101 6	7,716	9,345	8,353	12,860	15,575	13,922	82.6	92.4
Poland	4,183	4,305	4,333	97 2	96.5	39,463	47,015	43,549	65,770	78,357	72,580	83 9	90 6
Portugal .	1,093	1,157	1,376	94.4	79.4	8,724	5,190	11,864	14,540	8,651	19,773	168.1	73.5
Romania	8 618	8,481	7,893	101.6	109 2	81,602	77,231	57,949	136,001	128,716	96,579	105 7	140 8
Un Kingdom:													
Engl and W.	1,731	1,704	1,535	101.6	112.7	29,299	30,867	31,409	48,832	51,445	52,349	94 9	93 3
Scotland	100	94	76	106.7	132 0	2,509	2,128	1,935	4,181	3,547	3,226	117.9	129 6
*N. Ireland	4	7	6	63 3	72.1	...	164	142	. .	273	236	...	.
Sweden	726	695	701	104.6	103.6	15,898	12,915	14,264	26,495	21,524	23,773	123.1	111 5
Switzerland	174	172	149	101.3	117 1	3,697	2,682	2,978	6,162	4,470	4,963	137 9	124 2
Czechosl 1)	2,108	2,296	2,229	91.8	94.6	29,758	33,350	33,607	49,596	55,582	56,011	89.2	88.5
Yugoslavia	5,269	5,463	5,112	96 5	103 1	51,752	64,454	46,830	86,252	107,421	78,048	80.3	110 5
Total Europe	*52,822*	*53,436*	*51,836*	*98.9*	*101 9*	*666,014*	*640,615*	*630,038*	*1,110,003*	*1,067,673*	*1,050,046*	*104 0*	*105 7*
*U S S R	2) 101,678	96,116	87,437	105.8	116.3	...	...	571,965	...	...	953,256	..	. .
Canada w)	719	509	524	141.2	137 1	11,515	7,487	7,668	19,192	12,478	12,779	153.8	150 2
Canada s)	24,855	24,780	25,106	100.3	99 0	101,399	130,044	200,458	168,999	216,740	334,097	78.0	50.6
United States w)	47,079	37,608	35,540	125.2	132 5	412,887	311,408	311,058	688,145	519,013	518,430	132 6	132.7
United States s)	21,119	11,212	16,354	188.4	129 1	119,400	64,469	96,724	199,000	107,448	161,206	185.2	123 4
Mexico .	1,273	1,263	1,229	100 8	103 6	6,730	8,164	7,160	11,216	13,606	11,933	82 4	94 0
Total N Am .	*95,045*	*75,372*	*78,753*	*126 1*	*120 7*	*651,931*	*521,572*	*623,068*	*1,086,552*	*869,285*	*1,038,445*	*125 0*	*104 6*
*Cyprus . . .	...	190	176	..	...	...	1,105	1,103	...	1,842	1,838	...	...
Chosen . .	839	818	800	102.6	104.9	6,625	4,847	5,471	11,041	8,078	9,118	136 7	121.1
India . .	33,222	33,639	33,825	98 8	98 2	219,699	211,008	210,269	366,165	351,680	350,448	104.1	104 5
*Iraq . .	...	3,000	3) 2,417	...	...	...	11,795	7,441	...	19,658	3) 12,401	...	...
*Japan . . .	..	1,686	1,440	...	...	.	27,117	24,220	.	45,194	40,365	...	. .
Manchukuo	...	2,682	3,102	...	...	25,164	18,406	22,777	41,939	30,675	37,960	136 7	110 5
*Palestine .	...	...	472	...	..	. .	1,677	1,598	...	2,795	2,663	...	...
Syria a Leb.	1,349	1,316	1,253	102.5	107 6	10,315	9,422	8,680	17,192	15,704	14,467	109 5	118 8
*Transjordan	—	—	—	—	—	. .	898	1,379	...	1,497	2,298	...	. .
Turkey .	8,323	8,843	7,983	94.1	104.3	84,188	83,099	55,732	140,311	138,496	92,884	101.3	151.1
Total Asia §)	*46,415*	*47,298*	*46,963*	*98.1*	*98.8*	*345,991*	*326,782*	*302,929*	*576,648*	*544,633*	*504,877*	*105.9*	*114 2*
Algeria . . .	4,062	4,287	3,907	94 8	104.0	20,397	17,864	19,674	33,995	29,773	32,789	114.2	103 7
Egypt . . .	1,421	1,464	1,549	97.1	91 8	27,226	27,421	26,293	45,376	45,701	43,822	99.3	103.5
*Eritrea . . .	...	40	14	...	...	...	249	52	...	414	86	...	...
*Kenya 4) . .	...	...	41	...	...	...	...	252	...	. .	419	...	...
Libya . . .	111	80	46	137.7	241.6	592	251	149	987	418	249	235.9	396.1
F. Morocco .	2,743	3,194	5) 3,019	85.9	—	11,023	7,341	5) 17,554	18,372	12,234	5) 29,255	150.2	—
Tunisia . .	2,219	1,221	2,019	181.7	109.9	11.023	4,850	8,554	18,372	8,083	14,256	227.3	128.9
Total N. Afr	*10.556*	*10.246*	*10.540*	*103.1*	*100.1*	*70,261*	*57,727*	*72,224*	*117,102*	*96,209*	*120,371*	*121.7*	*97.3*
*Argentina .	6) 17,594	6) 17,503	6) 17,954	100.5	98.0	...	148,702	135,462	...	247,832	225,766	...	...
*Chile. . . .	...	1,917	1,826	...	...	...	17,222	17,670	...	28,702	29,450	...	...
*Uruguay . .	...	998	1,116	...	...	...	6,301	6,853	...	10,501	11,421	...	...
*Un S. Africa	...	2,133	1 763	...	...	...	9,717	8,688	...	16,195	14 480	...	...
*Australia . .	13,700	12,351	13,982	110 9	98.0	...	90,064	103,139	...	150,106	171 898	...	...
*N. Zealand .	...	...	266	...	...	...	4,290	4,976	...	7,150	8,293	...	...
TOTALS § . .	204,838	186,352	188,082	109.9	108.9	1,734,197	1,540,896	1,828,259	2,890,305	2,577,800	2,712,739	112.1	106.5

See notes on page 775.

Area and production of rye.

Countries	† Area					† Production							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38		1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38	
				1936 — 1936/1937 = 100	Aver. = 100							1936 — 1936/1937 = 100	Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	10,270	11,154	11,056	92.1	92.9	149,081	162,844	171,328	266,217	290,793	305,945	91.5	87.0
Austria	891	921	947	96.8	94.1	9,425	10,420	13,130	16,830	18,608	23,447	90.4	71.8
*Belgium	378	385	479	98.3	78.9	...	7,873	10,608	...	14,060	18,944	...	...
Bulgaria	456	434	517	104.9	88.1	4,644	4,469	4,880	8,293	7,980	8,714	103.9	95.2
*Denmark	343	327	350	105.1	98.1	...	4,392	5,490	...	7,842	9,804	...	...
*Spain	...	1,471	1,466	...	...	...	10,110	12,150	...	18,053	21,697	...	...
Estonia	367	338	363	108.7	101.2	4,570	3,384	4,204	8,161	6,044	7,507	135.0	108.7
Finland	598	593	570	100.8	105.0	8,816	7,143	7,768	15,743	12,755	13,871	123.4	113.5
France	1,636	1,634	1,712	100.1	95.6	16,325	15,764	18,042	29,152	28,150	32,218	103.6	90.5
Greece	176	160	178	109.9	98.7	1,473	926	1,270	2,631	1,654	2,267	159.1	116.1
Hungary	1,516	1,607	1,568	94.3	96.7	13,564	15,744	15,978	24,222	28,115	28,532	86.2	84.9
*Irish Free State	...	2	3	..	...	...	38	48	...	68	85	...	...
Italy	259	261	285	99.4	91.0	3,193	2,914	3,517	5,701	5,204	6,281	109.5	90.8
Latvia	705	637	618	110.7	114.1	9,228	6,241	6,864	16,479	11,145	12,257	147.9	134.4
Lithuania	1,259	1,216	1,231	103.5	102.3	13,249	11,935	12,548	23,658	21,313	22,407	111.0	105.6
Luxemburg	19	19	19	100.0	101.3	274	251	270	489	449	481	109.1	101.7
Norway	15	15	15	100.0	94.9	260	238	248	465	425	443	109.4	104.9
Netherlands	557	554	449	100.6	124.0	10,163	10,673	9,168	18,149	19,059	16,371	95.2	110.9
Poland	14,141	14,410	14,160	98.1	99.9	122,798	140,302	140,952	219,283	250,541	251,701	87.5	87.1
Portugal	569	388	376	146.4	151.1	2,600	1,941	2,573	4,642	3,466	4,595	134.0	101.0
Romania	1,060	1,041	939	101.8	112.9	9,350	9,992	7,063	16,697	17,842	12,613	93.6	132.4
Sweden	519	530	547	97.9	94.8	9,511	7,779	9,393	16,984	13,891	16,773	122.3	101.3
Switzerland	37	38	42	97.2	89.1	679	603	773	1,213	1,077	1,381	112.5	87.8
Czechoslovakia	2,413	2,510	2,531	96.1	95.3	31,906	31,667	38,849	56,975	56,549	69,374	100.8	82.1
Yugoslavia	627	628	615	99.9	102.1	4,614	4,481	4,593	8,239	8,002	8,202	103.0	100.5
Total Europe	*38,090*	*39,088*	*38,738*	*97.4*	*98.3*	*425,723*	*449,711*	*473,411*	*760,223*	*803,062*	*845,380*	*94.7*	*89.9*
*U. S. S. R.	...	...	62,627	...	...	...	...	483,652	...	...	863,667	...	...
Canada (w)	700	457	555	153.1	126.2	2,569	1,704	2,846	4,588	3,042	5,082	150.8	90.3
Canada (s)	193	178	157	108.6	122.6	812	694	770	1,450	1,239	1,375	117.0	105.5
United States	3,960	2,757	3,021	143.6	131.1	29,047	14,310	19,027	51,869	25,554	33,977	203.0	152.7
Total N. Am.	*4,853*	*3,392*	*3,733*	*143.0*	*130.0*	*32,428*	*16,708*	*22,643*	*57,907*	*29,835*	*40,434*	*194.1*	*143.2*
Turkey	875	909	670	96.2	130.6	10,540	9,889	5,824	18,822	17,660	10,400	106.6	181.0
Algeria	4	4	3	97.6	114.4	23	16	17	41	29	31	142.6	134.0
*French Morocco	...	7	3	...	...	...	20	12	...	35	22	...	...
*Argentina	6) 2,100	6) 2,204	6) 1,731	95.3	121.4	...	4,189	5,626	...	7,480	10,047	...	...
Totals	**43,822**	**43,393**	**43,144**	**101.0**	**101.6**	**468,714**	**476,324**	**501,895**	**836,993**	**850,586**	**896,245**	**98.4**	**93.4**

See notes on page 775.

Area and production of barley.

Countries	†) Area					†) Production							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937/1937/38: 1936 — 1936/1937 = 100	% 1937/1937/38: Aver. = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937/1937/38: 1936 — 1936/1937 = 100	% 1937/1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	4,235	4,041	3,958	104.8	107.0	78,184	74,937	71,837	162,886	156,122	149,663	104.3	108.8
Austria	397	403	415	98.5	95.6	5,505	6,130	6,123	11,469	12,771	12,757	89.8	89.8
*Belgium	61	74	86	82.5	71.1	...	1,748	2,016	...	3,642	4,199	...	...
Bulgaria	530	484	569	109.7	93.2	7,041	6,674	6,444	14,670	13,905	13,426	105.5	109.3
*Denmark	906	912	860	99.4	105.4	...	19,802	21,994	...	41,255	45,823	...	...
*Spain	...	4,528	4,683	...	...	...	37 690	52,784	...	78,523	109,968	...	...
Estonia	...	250	263	...	...	1,895	1,915	2,280	3,949	3,989	4,750	99 0	83.1
Finland	324	324	312	100.0	103.7	3,909	4,165	3,958	8,143	8,676	8,245	93.9	98.8
France	1,765	1,837	1,795	96.1	98.3	21,963	22,467	23,516	45,758	46,807	48,993	97.8	93.4
Greece	566	511	536	110.8	105 6	5,123	3,388	4,268	10,673	7,058	8,892	151 2	120.0
Hungary	1,180	1,161	1,152	101.6	102.4	10,580	14,514	13,832	22,042	30.238	28,818	72.9	76.5
*Irish Fr. St.	...	130	124	...	...	...	2,739	2,836	...	5,707	5,908	...	...
Italy	483	482	510	100 1	94.7	5,149	4,246	4,944	10,728	8,845	10,300	121.3	104.2
Latvia	449	468	458	95.9	98.0	4,750	3,639	4,417	9,897	7,580	9,202	130.6	107.5
Lithuania	524	529	501	99.1	104 6	5,407	5,128	5,369	11,264	10,683	11,185	105.4	100.7
Luxemburg	5	5	8	100 0	66.3	68	65	99	142	134	207	105 9	68.7
*Malta 7)	...	5	6	...	...	...	83	113	...	173	236	...	...
Norway	149	149	143	99.7	103.8	2,864	2,531	2,420	5,967	5,273	5,042	113.2	118.3
Netherlands	122	106	69	116 0	177.7	3,064	2,666	1,715	6,384	5,554	3,573	114 9	178.7
Poland	3,046	2,933	2,993	103 9	101.8	28,219	30,896	31,894	58,791	64,367	66,447	91 3	88.5
Portugal	194	193	171	100.4	113.2	957	769	942	1,994	1,603	1,962	124.4	101.7
Romania	3,780	3,980	4,411	95.0	85 7	19,071	35,535	28,929	39,732	74,033	60,270	53.7	65.7
Un Kingdom													
Engl. a W.	823	819	879	100 5	93 7	12,835	14,851	15,922	26,740	30,940	33,171	86 4	80.6
Scotland	82	72	78	113.5	105.3	1,725	1,478	1,626	3,593	3,080	3,388	116.7	106.1
*N. Ireland	3	3	2	98.2	144 6	...	62	43	...	130	90	..	...
Sweden	255	255	270	99.6	94 2	4,306	4,404	4,746	8,970	9,175	9,889	97 8	90.7
Switzerland	11	10	15	102.5	70.3	181	155	253	377	322	528	117.1	71.4
Czechosl.	1,661	1,571	1,686	105.7	98.5	23,322	22,462	26,570	48,589	46,797	55 354	103.8	87 8
Yugoslavia	1,030	1,051	1,043	98.0	98.7	8,443	9,322	8,959	17.590	19,421	18,665	90.6	94.2
Total Europe §	*21,861*	*21,634*	*22,235*	*101.1*	*98.3*	*254,561*	*272,337*	*271,063*	*530,348*	*577,373*	*564,727*	*93.5*	*93.9*
*U. S. S. R	2) 21,574	2) 20,150	18,869	107.1	114.3	...	...	145,729	..	...	303,607	...	...
Canada	4,320	4,432	3,741	97.5	115.5	42,135	34,523	34,486	87,781	71,922	71,846	122.1	122.2
United States	11,166	8 322	10,596	134 2	105.4	111,840	70,777	101,177	233,000	147,452	210,785	158.0	110 5
Total N Am	*15,486*	*12,754*	*14,337*	*121.4*	*108 0*	*153,975*	*105,300*	*135,663*	*320,781*	*219,374*	*282,631*	*146.2*	*113 5*
*Cyprus	...	110	107	...	...	...	908	777	..	1,891	1,618	...	...
Chosen	2,685	2,616	2,481	102 7	108 2	30,112	22,292	22,578	62,734	46,442	47,038	135.1	133.4
*Iraq	...	2,000	3) 1,270	..	...	...	12,125	3) 6,449	..	25,262	3) 13,435	...	...
*Japan	...	1,918	1,979	...	...	...	33,098	36 327	...	68,955	75,683	...	...
*Palestine	..	...	494	...	...	...	1,216	1,045	...	2,534	2,178	...	...
Syria & Leb	795	727	766	109 3	103.7	7,209	6,792	6,322	15,019	14,151	13,170	106.1	114.0
*Transjord.	—	—	—	—	—	...	371	535	...	772	1,114	...	...
Turkey	4,408	4,484	3,762	98.3	117 2	50,375	50,788	32,890	104,949	105,810	68,522	99.2	153 2
Total Asia	*7,888*	*7,827*	*7,009*	*100.8*	*112 7*	*87,696*	*79,872*	*61,790*	*182,702*	*166,403*	*128,730*	*109.8*	*141.9*
Algeria	2,951	3,120	3,240	94.6	91 1	12,487	14,150	16,486	26,015	29,480	34,347	88.2	75.7
Egypt	271	282	308	95.9	88.0	5,074	5,196	4,847	10,571	10,825	10,098	97.7	104.7
*Eritrea	...	91	56	...	...	...	440	331	...	916	689	...	...
Libya	346	179	407	193.1	85.2	1,243	261	1,019	2,589	543	2,124	476.6	121.9
F. Morocco	4,201	4,104	5) 3,684	102.4	—	16,755	33,651	5) 25,173	34,907	70,108	5) 52,444	49.8	—
Tunisia	1,503	741	1,240	202.8	121.2	4,409	1,653	5,027	9,186	3,445	10,472	266.7	87.7
Total Africa	*9,272*	*8,426*	*8,879*	*110.0*	*104.4*	*39,968*	*54,911*	*52,552*	*83,268*	*114,401*	*109,485*	*72.8*	*76.1*
*Argentina	6) 1,915	6) 1,925	6) 1,746	99.5	109.7	...	14,330	13,694	...	29,855	28,530	...	...
*Chile	...	178	161	...	...	...	2,169	2,394	...	4,519	4,987	...	...
*Uruguay	...	49	18	...	...	...	381	129	...	794	268	...	...
*N. Zealand	...	...	19	...	...	...	337	306	...	703	637	...	...
Totals §	**54,507**	**50,641**	**52,460**	**107.6**	**103.9**	**536,200**	**512,420**	**521,068**	**1,117,099**	**1,067,551**	**1,085,573**	**104.6**	**102.9**

See notes on page 775.

Area and production of oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . .	7,030	6,866	7,791	102.4	90.2	129,378	123,865	135,125	404,304	387,074	422,261	104.5	95.7
Austria .	698	713	755	97.9	92.4	9,116	9,421	9,180	28,488	29,439	28,687	96.8	99.3
*Belgium	521	534	648	97.6	80.5	...	12,196	15,245	..	38,111	47,640	...	...
Bulgaria	269	258	299	104.2	90.1	2,734	2,989	2,205	8,544	9,341	6,890	91.5	124.0
*Denmark .	928	933	943	99.5	98.4	...	18,437	22,120	..	57,616	69,123	...	...
*Spain .	..	1,358	1,917	...	...	...	12,183	14,774	...	38,070	46,169	..	...
Estonia	...	341	350	...	...	2,760	2,509	3,106	8,626	7,842	9,706	110.0	88.9
Finland	1,122	1,087	1,142	103.2	98.3	14,467	14,357	14,815	45,208	44,864	46,295	100.8	97.7
France	7,952	8,134	8,312	97.8	95.7	100,477	92,914	105,481	313,989	290,354	329,626	108.1	95.3
Greece .	415	335	336	123.8	123.2	3,219	2,081	2,244	10,059	6,502	7,013	154.7	143.4
Hungary .	572	529	560	108.2	102.3	5,242	5,776	6,053	16,382	18,049	18,914	90.8	86.6
*Irish Free State	.	559	617	...	..	...	11,580	13,211	...	36,188	41,283	...	...
Italy	1,069	1,075	1,093	99.4	97.9	13,629	10,545	12,165	42,591	32,952	38,015	129.3	112.0
Latvia	828	838	784	98.8	105.7	9,029	6,270	7,808	28,214	19,595	24,401	144.0	115.6
Lithuania	861	883	867	97.6	99.4	8,595	7,310	8,274	26,860	22,845	25,856	117.6	103.9
Luxemburg	65	65	69	100.0	94.1	866	836	1,002	2,708	2,612	3,132	103.6	86.5
Norway	211	210	231	100.3	91.4	4,260	3,775	3,835	13,314	11,797	11,983	112.9	111.1
Netherlands	358	333	339	107.4	105.7	7,143	6,988	6,277	22,322	21,836	19,615	102.2	113.8
Poland	5,672	5,572	5,458	101.8	103.9	51,809	58,204	55,256	161,901	181,887	172,675	89.0	93.8
Portugal	723	657	442	110.1	163.6	2,360	1,847	1,962	7,376	5,770	6,132	127.8	120.3
Romania	1,906	1,986	2,035	96.0	93.7	8,388	18,676	14,446	26,211	58,362	45,144	44.9	58.1
United Kingdom													
Engl and Wales	1,222	1,420	1,510	86.1	81.0	20,250	24,192	26,746	63,280	75,600	83,580	83.7	75.7
Scotland	816	829	840	98.5	97.1	15,232	14,381	15,178	47,600	44,940	47,432	105.9	100.4
*N Ireland	257	265	282	96.9	91.0	..	5,796	5,878	...	18,112	18,370	...	.
Sweden	1,641	1,654	1,629	99.2	100.7	27,673	27,293	25,755	86,476	85,291	80,484	101.4	107.4
Switzerland	27	26	35	104.1	77.5	514	440	647	1,605	1,375	2,022	116.8	79.4
Czechoslovakia	1,925	1,895	1,989	101.6	96.8	28,424	26,860	29,417	88,824	83,938	91,928	105.8	96.6
Yugoslavia	846	890	902	95.0	93.8	6,565	7,342	6,686	20,517	22,942	20,894	89.4	98.2
Total Europe §	*36,569*	*36,596*	*37,768*	*99.9*	*96.8*	*472,130*	*468,871*	*493,663*	*1,475,399*	*1,465,207*	*1,542,685*	*100.7*	*95.6*
*U S S R	2) 43,193	2) 43,525	42,460	99.2	101.7	.	. .	329,727	...	..	1,030,389	...	.
Canada	13,095	13,118	13,468	99.8	97.2	95,902	92,405	118,509	299,694	288,764	370,342	103.8	80.9
United States	35,933	33,213	37,553	108.2	95.7	368,640	252,512	310,094	1,152,000	789,100	969,044	146.0	118.9
Total N Am	*49,028*	*46,331*	*51,021*	*105.8*	*96.1*	*464,542*	*344,917*	*428,603*	*1,451,694*	*1,077,864*	*1,339,386*	*134.7*	*108.4*
Syria & Leb	27	28	30	93.9	87.6	281	241	278	878	752	868	116.7	101.2
Turkey	554	1,099	433	50.4	127.7	5,307	4,751	3,715	16,583	14,846	11,611	111.7	142.8
Algeria	477	473	476	101.0	100.3	2,866	3,869	2,931	8,957	12,090	9,160	74.1	97.8
Fr Morocco	94	80	5) 66	116.8	—	926	425	5) 497	2,894	1,328	5) 1,552	218.0	—
Tunisia .	126	62	65	204.0	195.1	441	220	481	1,378	689	1,502	200.0	91.7
Total N Afr	*697*	*615*	*607*	*113.3*	*114.6*	*4,233*	*4,514*	*3,909*	*13,229*	*14,107*	*12,214*	*93.7*	*108.3*
*Argentina .	6) 3,114	6) 3,158	6) 3,434	98.6	90.7	.	17,461	19,061	...	54,564	59,566	..	.
*Chile	.	282	202	...	...	..	2,206	1,966	. .	6,894	6,144	...	.
*Uruguay	.	213	181	...	...	...	1,449	841	...	4,529	2,628	...	..
*New Zealand .	...	...	79	...	. .	...	1,080	1,311	...	3,375	4,096	.	.
TOTALS §)	86,875	84,669	89,859	102.6	96.7	946,493	823,294	930,168	2,957,783	2,572,776	2,906,764	115.0	101.8

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including spelt. — 2) Area provided for in the Plan — 3) Average of three years. — 4) Cultivation by Europeans only. — 5) Incomplete data — 6) Area sown — 7) Barley and meslin in 1936. 10 centals (17.8 bushels) per acre for rye against 9.6 (17.2); 12.4 (25.8) per acre for barley against 12.2 (25.5); and 12.7 (39.6) per acre for oats against 11.4 (35.7). The average yield of oats is higher than that of the last three years and equal to the average yield of 1931-35. The specific gravity of rye and oats is good (57.1 and 37.1 lb. per bushel), but it is mediocre for barley (50.4 lb. per bushel), though even for barley it is better than last year.

For wheat, no official estimate of acreage and production has yet been published. Reports however show that threshing, which was almost finished in the west at the beginning of October and was in progress in other areas, confirms in most cases the previous forecasts namely variable yields, but on the whole rather lower than last year.

The lack of any precise information on the area under cultivation makes it difficult to draw any clear conclusions on the size of the probable deficit of this year's production compared with last year. On the other hand, it is reported that the grains are of excellent quality, very dry and of high specific gravity.

Weather conditions were generally favourable for field work. The drought was interrupted about 10 September by a spell of widespread rain, with a drop in temperature, that lasted until 20 September, when it was succeeded by another spell of fine weather that lasted to the end of the month. The first week of October was again rather wet, but fine weather returned and lasted up to the middle of the month.

Field work, made impossible by drought up to mid-September was afterwards resumed, particularly the dressing of the soil. The sowing of winter rye, oats and barley began in the north about the end of September and was continued thereafter on land that was mostly well prepared.

According to the preliminary, estimate the area cultivated to meslin this year is about 169,000 acres against 182,000 in 1936 and 191,000 on the average of the five years ending 1935, percentages 93.2 and 88.6. The corresponding production is estimated at about 1,789,000 centals (3,084,000 bushels) against 1,923,000 (3,316,000) and 2,187,000 (3,711,000), percentages 93.0 and 81.8.

Greece. By the middle of September the threshing of cereals was completed everywhere, even in the mountain regions. The latest cereal production estimate, though showing a slight diminution below the previous estimate, fully confirms the exceptionally abundant harvest of this year.

According to the most recent estimate, production of mixed grains this year is about 982,700 centals (1,694,000 bushels) against 854,000 (1,472,000) in 1936 and 757,400 (1,306,000) on the average of the five years ending 1935; percentages 115.1 and 129.8.

Hungary. During the three weeks, 15 September to 5 October, the weather was very variable. On the whole, day temperatures were above average. The rains, alternating with sunny weather, were favourable for field work, and the quantity of rain that fell was above average over 60 per cent of the country.

By 5 October the threshing of cereals was finished throughout the country. According to the latest estimates, the specific gravity of cereals in the 1936-37 season appears as follows:

Wheat	59-65	lb.	per	bushels
Rye	51-62	»	»	»
Barley	44-55	»	»	»
Oats	28-39	»	»	»

At the beginning of October, the sowing of winter cereals was in progress. Barley and rye sown early sprouted normally and are growing well. Sowing of winter wheat had hardly begun at this time.

Irish Free State. The weather during September was variable with a good deal of rain, but generally speaking the work of harvesting was carried out with little difficulty. The quality of the crops is generally good. Wheat yields are about the same as last year, and barley yields about average, while oat yields are regarded as good

Italy. During the first fortnight of September weather conditions were on the whole unfavourable for cereal crops. Consequently the work of preparing the fields for autumn crops was delayed.

Latvia: During September warm and sunny weather prevailed and the temperature was between 1.5 and 2.5 degrees above normal. Only towards the end of the month did the first frosts occur

Lithuania During September the weather was sunny, hot and dry Conditions were very favourable for field work and crops have been housed in dry weather.

Production of meslin this year is estimated at 3,097,500 centals (5,340,600 bushels against 2,608,500 (4,497,500) in 1936 and 2,603,300 (4,488,500) on the average of the five years ending 1935, percentages 118.7 and 119.0

Norway Area cultivated to meslin this year is about 11,000 acres against 10,800 in 1936 and 13,000 on the average of the five years ending 1935, percentages 102.2 and 84.0 The corresponding production is estimated at about 215,500 centals (371,600 bushels) against 202,100 (348,500) and 222,900 (384,300), percentages 106.6 and 96.7.

Poland: In the first decade of September, the weather was hot and mostly dry. The lack of rain which in some areas had lasted three or four weeks made it difficult to sow winter cereals at the usual time Later almost universal rain which followed a sharp drop in temperature at the beginning of the second decade and also the return of hot calm weather enabled the resumption of the sowing of cereals which at the beginning of the third decade was finished only in the southern provinces.

Romania The sowing of winter cereals was continued during the first week of October The work was done in good conditions It is estimated that there will be an increase of 15 per cent in the area sown to winter wheat over that sown in the autumn of 1936 More selected wheat has been sown than in the preceding years.

United Kingdom Generally the weather in England and Wales during September was fine and warm At the beginning and at the end of the month temperatures were above average but during the middle of the month an unsettled and showery, but mainly cool spell was experienced Conditions were very favourable during the month for harvesting, which was practically finished by the end of September, and much of the autumn sowing was already accomplished in very favourable weather In parts of Scotland heavy rain retarded the harvest in the first half of September But mostly the weather was fair

Cereal crops were generally reported free from disease in England and Wales, bunt and smut being less prevalent than usual The quality and condition of wheat are generally good, though in some districts the grain is rather small The quality and condition of barley are also generally good, but the crop is short in the straw Oats are good in condition, but the quality is variable, that of winter oats being good, whilst spring sown are light. In Scotland all crops were exceptionally fine In Northern Ireland winter cereals at the end of August had yielded fairly well, but spring cereals were not promising.

The yield per acre of wheat in Great Britain was estimated at the end of September at 19.4 centals (32 3 bushels) per acre, barley, 16.8 (34.9); oats 17.2 (53 8) Yields in England and Wales were below average for all cereals and lower also than last year. But in Scotland they were very high. The poor yields generally were due to the very wet winter which affected crops in the eastern counties.

Sweden: Production of meslin this year is estimated at 12,233,500 centals (21,092,500 bushels) against 12,120,500 (20,897,600) in 1936 and 11,463,400 (19,764,800) on the average of the five years ending 1935, percentages 100.9 and 106.7.

Yugoslavia In the first two decades of September the weather was very variable, warm and rather wet In the last decade it was warm and variable, but generally fine and sunny These weather conditions were very favourable for preparations for sowing, and for the sowing itself of winter cereals, which had begun at the end of the month.

U. S. S R.: On 5 October this year the harvest of cereals was completed over an acreage of 221,321,000 or 99 per cent of the plan, as against 211,461,000, or 98 per cent of the plan last year

Threshing was completed over an acreage of 164,982,000, or 75 per cent. of the acreage harvested, against 185,710,000, or 88 per cent of the plan at the same date last year

On 5 October the sowing of winter cereals was finished on an acreage of 82,085,000, or 90 per cent of the plan, against 85,542,000, or 91 per cent of the plan, sown at the same date last year

In the second fortnight of September dry weather prevailed but towards the end of the month and in the first decade of October there was rain over vast areas

According to the information available, crops over most of the country are growing under favourable conditions of temperatre and moisture

America.

Argentina (Telegram of 20 October). The growth of cereal crops, favoured by general rains, has been good

Harvesting has begun in the north.

United States: In the last week of September the weather was fair and the temperature seasonable or a little below Field work advanced in most of the country. Despite moderate to heavy rains in the mid-west, soil moisture was still deficient and winter wheat seeding was delayed, but elsewhere it was progressing

In the first week of October conditions were mostly unsettled with scattered showers and rather low temperatures in the north-east but rather warm in the central region. Rains were still needed in the mid-west where the soil was becoming dry and ploughing and seeding operations were consequently delayed. There was a good stand of autumn grains in some districts, but the seed was dormant where the soil was too dry.

In the second week of October the weather was generally fair for autumn work, but much of the middle west remained too dry for seeding and germination of grains.

Asia.

Japan: The harvesting, housing and threshing of spring wheat and barley were carried out under normal conditions.

Palestine: Weather conditions were generally cool, with the exception of a warm spell at the commencement of the month. Westerly winds and cloudy skies in the forenoon were the rule, with heavy dewfalls at night. Winnowing operations of wheat have been completed and the crop is on the market at normal prices. The quality of grain is of a high standard. All seasonal operations concerning barley are finished and export continues. It is expected that between 8,500 and 10,000 metric tons will leave Gaza during the season The grain is mostly of good quality but inferior in comparison to that of wheat. The harvesting of a fine durra crop is now completed and threshing is general. Generally speaking production of all cereals is very much in excess of 1936 and the quality of grain is better. The earliest *afir* sowing was commenced towards the close of the month. Summer ploughing is becoming a general practice and tractors are seen in increasing numbers at work in most of the areas

Syria and Lebanon. Harvesting, threshing and the housing of cereals have been carried out in normal time and in generally favourable conditions. There was almost no damage. The crop is on the whole between good and medium, but on the whole larger than that of last year Yields and quality are very satisfactory.

Africa

Algeria The quality of the grains of the second crop is excellent on the whole. September was marked by a sharp fall in temperature and storm showers, particularly on the mountain massifs and in the west and south. Such weather was favourable for field work

Egypt Harvesting of summer millet is completed, and, preparation of the crop and storing are being carried out The yield per acre is expected to slightly exceed the average Sowing of autumn millet in the remaining areas was terminated in Upper-Egypt by the middle of the month, and the early crops began flowering and the formation of the ears Watering, hoeing, manuring and thinning are being carried out. The crop condition is satisfactory

Kenya Sunny conditions prevailed generally in August, although rain fell heavily in up-country districts during the first half of the month.

French Morocco In September there were storms in several parts of the territory (Fez and Tazus) and light rains have been general, with heavier rain in certain districts in the north (Rabat and Oudjdas) The temperature has been falling. The rivers have risen, as has the level of underground waters

Preparatory work is being actively pushed forward on the European holdings. Provisions have been made for supplying the European farmers and natives with seed, and it is officially estimated that the sown areas will be probably at least as large as those of last year.

Tunisia. Weather conditions in September were fair with frequent and sometimes heavy rain At the end of the month field work was being done satisfactorily both in the European and native crops.

Union of South Africa · In the south-west of Cape Province winter crops, favoured by warm, wet weather, were in excellent condition at the end of August On the south coast conditions varied from wet to dry, but crops still looked promising

In the Karroo, few crops had survived the drought and cold winds.

In the north-east and border areas, crops were almost totally destroyed by drought.

In the Transvaal cold winds and frosts at the beginning of August damaged winter crops.

Oceania

Australia According to a cable received on 18 October on the wheat crop condition, the weather in Western Australia during the past month was scarcely favourable with a lack of rain but this year's wheat yield is expected to be larger than last year's. The crop condition in South Australia deteriorated during the month owing to hot, dry winds but is still satisfactory. There was also a lack of rain in New South Wales, except for a partial rainfall during the early part of October. The wheat crop condition is still fairly satisfactory but more rains are necessary to ensure a satisfactory harvest. The condition of wheat in Victoria also deteriorated during the last half of September but during the early part of October there was general rainfall and crop condition is now satisfactory.

Current information on maize.

Austria. At the end of September the harvesting of maize was in progress in low-lying areas The formation and the ripening of the ears was variable. Owing to the excessive humidity of the ears they were being left on the stalks after the tops and the foliage had been removed

Bulgaria· The frequent rains that fell in August and the beginning of September as well as the rather warm weather favoured the growth of maize Production is very variable and rather poor in some districts, crops having suffered from drought in September in certain areas The rains that fell at the beginning of October considerably improved the condition of maize. The production, as forecast, is rather below that of last year though it is up to the average.

France: The rain that fell in the second decade of September was on the whole too late. In many areas of the southwest the growth of maize was not able to recover. the leaves and stalks were scorched and yields are very mediocre. The crop is reported as good in the east but below average in the south-east. On the whole, this year's production is well below last year's and is likely to be below the average.

Hungary On 5 October the harvesting of maize was in progress. Ears are generally large and well developed and grains free of disease

Italy A very satisfactory crop of summer sown maize is forecast.

Portugal. On unirrigated lands maize suffered severely from drought in August and growth is retarded, on the other hand on irrigated land crops have grown well. At the end of the month the total crop was forecast as average.

Romania· At the beginning of October the harvesting of maize was begun in the south The production is poor but is nevertheless large enough to leave an exportable surplus of about 3,300,000 centals (6,600,000 bushels), according to official estimates. The exportable surplus is estimated at a much higher figure from private sources.

The prohibition of maize export is considered necessary by the Government owing the very high humidity of the maize of the present crop, which is for that reason not exportable; if exportation was free, it would encourage the exportation of maize of the 1936 crop, which the country itself needs.

Yugoslavia: The wet but warm weather of the first decade of September and the fine, sunny weather of the last decade proved very favourable for the ripening of maize particularly in the main producing areas. According to the first estimates made at

Area and production of maize.

COUNTRIES	AREA					PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	...	207	195	...	...	...	2,547	2,423	...	4,549	4,327	...	...
Austria	159	158	158	100 9	100 4	3 446	3 767	2,990	6.153	6.727	5,340	91.5	115 2
Bulgaria	1,653	1,486	1,757	111 2	94 1	18,491	19,536	19,952	33,020	34,887	35,629	94 7	92 7
*Spain	...	...	1,076	...	...	...	. .	15,640	...		27,929	...	...
France	...	913	844	...	...	...	12,515	11,253	...	22,348	20,095	...	.
Greece	1) 652	1) 639	1) 614	101 9	106 0	...	6,326	4,616	..	11,297	8,244	.	...
Hungary	2,956	2,810	2,812	105 2	105 1	60,050	57,168	40,898	107,232	102,086	73,033	105 0	146.8
Italy 2)	3,174	3,235	3,246	98 1	97 8	66,045	59,992	53,968	117,938	107,128	96,372	110 1	122.4
Italy 3)	458	445	344	102.9	133 0	..	7,133	4,568	...	12 737	8,156	...	...
Poland	228	218	232	104 7	98 2	...	2,314	2,063	...	4,132	3,684	...	...
Portugal	...	1,057	1,014	...	...	...	6,767	7,715	...	12,084	13,778	...	...
Romania	12,795	12,999	12,124	98 4	105 5	93,370	123,724	118,327	166,733	220,936	211,299	75 5	78.9
Switzerland	...	2	2	..	...	..	47	55	...	83	98	..	...
Czechoslovakia 4)	1) 239	1) 212	1) 6) 208	112.9	114.9	4,119	4,163	6) 3,060	7,356	7,433	6) 5,464	99.0	134 6
Czechoslovakia 5)	...	1) 193	1) 6) 163	. .	.	. .	2,760	6) 1,614	..	4,928	6) 2,883	. .	...
Yugoslavia	1) 6,529	1) 6,765	1) 6,509	96 5	100.3	117.572	114,211	87,114	209,951	203,949	155,561	102 9	135 0
Total Europe	...	*31,339*	*30,222*	...	...	...	*422,970*	*360,616*	...	*755,304*	*643,963*	...	...
*U S S R.	7) 6,618	7) 6,799	9,181	97 3	72 1	...	. .	86,463	...	..	154,398	...	...
Canada	161	164	145	97 9	110 7	.	3,406	3,374	.	6,083	6,025	...	...
United States	96,146	92,829	102,079	103 6	94.2	1,434,720	856,423	1,307,192	2,562,000	1,529,327	2,334,271	167.5	109.8
*Mexico	...	.	7,786	...	...	...	.	41,597	...	.	74,281	...	...
Total N. Am.	...	*92,993*	*102,224*	. .	.	..	*859,829*	*1,310,566*	...	*1,535,410*	*2,340,296*	. .	...
*China	...	11,506	11,185	...			135,146	138,958	.	241,333	248,140	...	.
Manchukuo	...	3,199	2,736	...	.	50,338	46,772	38,313	89,890	83,522	68,416	107 6	131 4
*Palestine	..	..	8) 12	...	...	...		8) 64	...	.	114	...	...
Syria & Leb	...	37	59	...		...	402	585	. .	719	1,045	...	...
Turkey	...	1,041	987	...	.	.	15,120	10,673	...	27,000	19,059	...	...
Total Asia	...	*4,277*	*3,782*	...	...	..	*62,294*	*49,571*	...	*111,241*	*88,520*	. .	...
Algeria	...	16	21	...	. .	..	77	126	.	137	225	...	.
Egypt	...	1,578	1,829	. .	...		35,170	38,162	. .	62,805	68,146		.
Eritrea	...	20	26	...	...	...	90	214	...	161	382	...	...
*Kenya 9)	...	..	136	...	...	..	...	1,852	...	.	3,307	...	...
French Morocco	1,087	1,124	911	96 7	119 4	2,932	6,644	3,443	5,236	11,865	6,148	44.1	85.2
*Italian Somalia	...	. .	30	..	..	...	220	322	.	394	574	. .	.
Tunisia 10)	...	20	48	...	..	...	55	130	..	98	232	..	...
Total N. Afr.	...	*2,758*	*2,835*	...	...	...	*42,036*	*42,075*	...	*75,066*	*75,133*	...	...
Argentina 1)	...	(15,973)	(16,266)	...	...	—	—	—	—	—	—	—	—
Argentina 11)	...	11,930	11 152	...	...	...	201,387	187,441	. .	359,621	334,718	...	...
*Chile	...	121	121	...	...	...	. .	1,521	...	..	2,717	...	...
Un. of S. Afr.	...	1) 5,808	1) 5,839	...	...	...	49.626	33,975	...	88,618	60,669	...	...
TOTALS	...	**149,103**	**156,854**	...	...	...	**1,638,142**	**1,984,241**	. .	**2,925,260**	**3,543,298**	...	...

* Not included in the total. — 1) Area sown. — 2) Maize sown in spring — 3) Maize sown in summer. — 4) Crop grown alone. — 5) Mixed crop. — 6) Average 1934 and 1935 — 7) Area fixed by the plan — 8) Average 1931 to 1933 and 1935. — 9) Cultivation by Europeans. — 10) Maize and sorghum. — 11) Area harvested.

the end of September the maize crop this year is reported to be exceptionally large even exceeding the very full crop of last year.

The very damp and cool weather at the beginning of October was unfavourable for the drying of early maize already harvested and for the ripening of late maize. This might affect the final estimates of production.

Argentina (Telegram of 20 October) The sowing of maize is almost finished. Germination is irregular

United States In the last week of September the weather was generally fair and seasonable The maize harvest was generally satisfactory. In the first week of October husking and cribbing were in progress in fair weather. In the second week of October the weather was wet except in the mid-west, and in most localities the maize was too wet to permit active husking and cribbing.

Surinam The crop condition of maize was quite good in the second quarter of 1937 Prolonged rains caused damage particularly in low lying areas and did not permit re-sowing in the parts affected

Indo-China The harvest was finished throughout Cambodia in the first twenty days of August On the whole the main crop of Cambodia gave a 15 to 20 per cent higher yield than last year and the estimate for the total production of Cambodia this year is about 7,000,000 centals (12,000,000 bushels), for the minor crop 1,430,000, (2,560,000) and for the main crop 5,100,000 (9,100,000) It is an average crop compared with those of 1935 and 1934, but much larger than previous years as a result of the extension of the acreage

In Cochinchina the harvest was also finished at the end of August of the abî née and moidie à chaudoc varieties, as a result of the heavy rain which fell at the time of the harvest The extension of acreage in these provinces did not prove very successful Better results were obtained in the provinces of Bien hoà and Boria where the average yield was 9 centals (16 bushels) and where new extensions were predicted if economic conditions permitted

In Annam, crops harvested in August gave variable yields, partly normal but partly mediocre as a result of the drought In many provinces (Quang ngai, Binh dinh Phu yên) considerable sowing had been finished in August and the shoots were normal Sowing had also been carried out at the end of August in Van dinh, but in other districts rain was waited for

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area

	1937 acres	1936 acres
Area harvested in August	285,700	316,800
Area harvested from 1 January to 31 August	3,818,600	4,069,400
Area of standing crops at the end of August	1,031,200	1,226,400

Palestine Good yields of maize are being harvested throughout the growing areas Production is expected to be much in excess of 1936. The second sowing has not yet been put in hand.

Algeria: Yields were reported to be rather higher than last year.

Egypt: The early crops of autumn maize began to ripen in the south of the Delta, and harvesting is over in some patches there, while in the rest of the country, flowering and formation of the cobs and grains are progressing. Crop condition is normal.

Tunisia. In the first area (north), maize and sorghum crops gave satisfactory yields

Current information on rice.

Greece The harvesting of early rice had begun about the middle of September. On the whole, the crop condition of rice at the time of the harvest was very satisfactory. A large production is forecast

Portugal At the end of August the crop condition of rice was good, except in areas where drought was persistent Production was forecast as quite good

British Guiana It was estimated in August that, in spite of the previous heavy rains which had affected rice planting in some areas, the crop would be about average

Surinam The early rainy season enabled the early planting of rice, whose crop condition was very good during the second quarter of 1937. A larger acreage has been planted this year

Taiwan Rice of the 2nd crop is growing under good conditions.

India There were very heavy rains in north-east India at the end of September but by the end of the first week of October the monsoon was withdrawing. Standing crops generally were in fair condition, but in the Punjab they had been damaged by strong winds and tela

Area and production of rice.

Countries	Area					Production of rough rice							
	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38		1937/38	1936/37	Average 1931/32 to 1935/36	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38	
				1936/1937 = 100	Average = 100							1936/1937 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 45 lb				
Bulgaria	14	15	18	92 4	77 0	272	315	345	605	699	776	86 5	78 8
Italy	352	358	340	98 3	103 6	15 152	15,253	15,074	33,670	33,894	33,496	99 3	100 5
—													
United States	1,003	935	857	107 3	117 0	23,220	21,075	18,154	51,600	46,833	40,343	110 2	127 9
—													
Burma	[1] 12 444	12,691	12 666	98 1	98.2		158,381	160 224		351 951	356 047		
India	[1] 64,846	[1] 65,125	[1] 63,372	99 6	102 3	.	950,253	870 058		2 111,632	1 933,424	.	.
Indo China													
Annam (1st semestre)	3) 799	1,006	943	79 4	84 8	3) 6 621	9,293	7,684	3) 14,712	20 650	17 075	71 2	86 2
Tonkin (5th month) .	3) 1,049		1 198		87 6	3) 11 875	13,390	13 407	3) 26,388	29 792	29,792	88 7	88 6

1) First report — 2) Preliminary data — 3) Final estimate

Indo-China The rice crop of the third month has been very good throughout Tonkin. The early crops of rice of the tenth month benefited in August from continuous rains and have scarcely been affected by floods, so that the plants were very well-grown at the end of August On the other hand the growth of the main crop of late rice was affected, particularly in low-lying areas, by floods The growth of mountain rice was good at the end of August.

In Annam, the rain that fell in August improved the conditions of the rice fields of the 8th, 10th and 12th months, and growth on the whole was satisfactory at the end of the month. Some damage, however, was done by floods in certain parts of central Annam and also in the higher rice fields of the 10th month in south Annam. The rice of the 8th month which had been harvested in certain parts of the north and centre gave good yields. It was reported earlier that the crop of the 5th month was rather mediocre owing to drought.

In Cochinchina the return of the rains in August enabled the resumption, in the eastern provinces, of the work which had been interrupted in July. Sowing of early rice was undertaken in the province of Bien hou. The transplanting of early rice and the sowing of mid-season rice were in progress at the end of August in the centre, as was also planting out in the west. Rice of the third month looked well at the beginning of September and was blooming in places. Seedlings and rice planted out were on the whole growing very well in August as the result of recent rains, and the growth of floating rice was also good.

In Cambodia in August steady rains enabled the preparation of rice-beds and fields for planting out, but field work was rather interrupted owing to the variable weather of the beginning of the season. Seed-beds at the beginning of September were late and rice was only just planted out in certain parts (Kg-Speu, parts of Soairiêng and Prey-veng). Planting out was finished on the Gulf of Siam.

The area sown in the province of Battambang was smaller than that of last year. On the whole the growth of the main rice crop at the end of August was normal though threatened by lack or excess of rain. On the other hand there will be a considerable decrease in the crop of floating rice.

Java and Madura. The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area:

	1937 acres	1936 acres
Area harvested in August —		
Wet padi	468,800	487,800
Dry padi	5,400	23,200
Area harvested from 1 January to 31 August —		
Wet padi	7,506,400	7,549,700
Dry padi	948,700	967,500
Area of standing crop at the end of August —		
Wet padi	1,187,100	1,174,000
Dry padi	24,200	26,400

British Malaya. According to the most recent estimate area cultivated to rice in 1936-37 is about 740,000 acres against 725,000 in 1935-36 and 740,000 on the average of the five years ending 1934-35; percentages 102.1 and 100.0. The corresponding production of padi is estimated at about 11,056,000 centals (24,568,000 bushels) against 11,849,000 (26,332,000) and 10,586,000 (23,524,000); percentages 93.3 and 104.4.

In August the weather was exceptionally dry generally throughout the inland region of rainfall, total precipitation for the month being below average for all except three (Taipong, Maxwell Hill and Tapah) of the stations from which records were received. In the west coast region the rainfall was up to average at Port Dickson, was below average at Malacca, whilst very little rain fell at Muar. On the east coast the first half of the month was dry but normal rainfall was fairly general during the second half of the month.

The very dry weather delayed planting in Kedah and to a somewhat less extent in the Provinces of Wellesley, Krian and Perak generally.

The Panchang Bedena and Taijong Karang areas in Silangos were as yet too short of water to allow of any start being made to cultivate land for the coming crop Further progress was made at Panchang Bedena in clearing stumps and timber and some cultivators had prepared nursery plots. In Kelantan good progress was made with the planting of dry padi lands, and wet padi was planted in the lower areas, but the planting on the higher lands awaited further rain. In Malacca the dry weather had resulted in planting dates being later than was expected

Egypt Ripening is progressing in the early crops of summer rice, harvest being started in scattered areas there, while growth of the grains is progressing in the main crops, as well as formation of the ears in the late crops

Crop condition is slightly above the average.

Formation of the grains in the autumn rice crop and their growth are progressing in the early cultivations and some of the main ones Maturation has begun in some fields The crop is normal.

The preliminary results of the potato crops.

During the season just finished, weather conditions were favourable for potato crops Rain, that was at times even excessive, in the early stages of growth and sunny weather at the end of the season helped to produce the good results.

Consequently, for the main potato producing countries, for which statistics are at present available, yields are good.

Germany, which is the largest potato producing country (excluding the U S S. R.), reports a very large crop, which not only exceeds by 13 4 per cent. the good production of 1936, but is nearly 18 per cent. above the previous five-year average. This year's crop is thus a record for the last 20 years, and is quite near the maximum figure reached in 1913 and 1915, which centred around 1,200 million centals (2,000 million bushels).

In Poland, the second largest producer, the outturn, though not as high as the very high figure of 1936, yet exceeds the five-year average by nearly 3 per cent.

Statistics of production in France and Czechoslovakia, which occupy respectively 3rd and 4th place, are still lacking. For France, reports are rather pessimistic, but for Czechoslovakia, according to semi-official reports, production should be about 265 million centals (440 million bushels); this figure, if confirmed, would constitute also a record for that country

In nearly all the other minor European producing countries also the crop is good. In fact, some countries, such as Bulgaria, Hungary, Latvia, Lithuania and Switzerland report a very large production. On the other hand, Scotland has had a definitely poor crop; nor were yields satisfactory in the Netherlands.

In North America, the United States reports a very large outturn, 238 million centals (397 million bushels), which is very near the largest figures obtained

Area and production of potatoes.

COUNTRIES	AREA					PRODUCTION							
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	% 1937	
	1,000 acres			1936 = 100	Average = 100	1,000 centals			1,000 bushels of 60 lb.			1936 = 100	Average = 100
*Albania .	...	1)	1	...	...	..	22	22	...	36	37	...	...
Germany s)	320	332	548	96 4	58.4	37,846	35,928	56,813	63,075	59,878	94,686	105 3	66.6
Germany t)	6,816	6,569	6,495	103.8	105 0	1,120,410	985,336	925,352	1,867,313	1,642,194	1,542,222	113.7	121.1
Austria . .	538	519	496	103.7	108.3	61,441	52,220	56,790	102,399	87,032	94,648	117.7	108.2
*Belgium . .	392	396	413	99.2	95.1	...	71,109	79,253	...	118,512	132,086	...	...
Bulgaria . .	43	35	35	122.1	123.7	2,968	2,667	1,844	4,946	4,445	3,074	111.3	160.9
*Denmark. .	200	187	179	106.9	111.7	...	28,407	26,885	...	47,343	44,808	...	...
*Spain . . .	. .	...	1,087	...	...	...	...	109,215	..	. .	182,022	...	...
Estonia . .	...	183	172	...	...	21,812	22,721	19,274	36,353	37.868	32,122	96.0	113.2
Finland . .	230	215	197	107.0	116.7	26,923	29,158	24,919	44,871	48,596	41,531	92.3	108.0
*France. . .	2) 3,460	3,513	3.487	—	—	...	336,227	346,473	...	560,367	577,444	...	...
*Greece. . .	s) 29	48	42	—	—	...	2,844	2,085	...	4,740	3,475	. .	..
Hungary . .	731	733	715	99 7	102.2	57,512	54,042	36,914	95,851	90,068	61,522	106 4	155.8
*Irish Free State . . .	...	334	343	...	...	...	54,232	56,298	...	90,387	93,829	...	...
*Italy . . .	1,040	1.037	1.004	100.3	103.7	. .	58,001	53,116	...	96,667	88,524	...	...
Latvia . .	314	296	266	106.1	118.2	37,873	35,527	29,461	63,120	59,210	49,101	106.6	128.6
Lithuania .	445	442	435	100.6	102.3	53,951	45,751	44,120	89,917	76,250	73,532	117.9	122.3
Luxemburg.	41	41	41	100.0	100.9	4,318	4,411	4,170	7,197	7,352	6,950	97.9	103.6
*Malta . . .	..	10	7	...	...	...	570	541	...	951	902	...	...
Norway . .	128	127	120	100.6	106.5	20,109	20,852	19,855	33,514	34,753	33,092	96.4	101.3
Netherlands	336	322	384	104.3	87 5	55,116	55,260	66,669	91,858	92,099	111,113	99.7	82.7
Poland. . .	7,360	7,150	6,821	102.9	107.9	702,836	755,776	684,604	1,171,370	1,259.601	1,140,984	93.0	102.7
*Portugal . .	...	78	79	...	...	...	11,391	13,075	...	18,985	21,791	...	...
*Romania. .	...	535	490	...	...	...	42,823	38,101	...	71,370	62,500	...	...
United Kingdom													
England & Wales . .	455	457	484	99.7	94.0	65,744	63,034	69,700	109,573	105,056	116,166	104.3	94.3
Scotland. .	135	133	140	101.5	96.3	20,048	22,176	21,634	33,413	36,960	36,057	90.4	92.7
*Northern Ireland. .	125	132	136	95.2	92.0	...	17,576	20,527	...	29,293	34,212	...	...
Sweden . .	329	330	328	99.7	100.3	38,956	40,260	41,253	64,925	67.098	68,753	96.8	94.4
Switzerland.	121	117	114	103.4	105.7	17,970	12,521	16,580	29,949	20,868	27,633	143·5	108.4
Czechosl s)	104	104	96	99.5	108.2	7,097	8,995	6,883	11,828	14,991	11,472	78.9	103.1
Czechosl t)	1,810	1,772	1,728	102.1	104.7	...	226,939	189,133	...	378,224	315,215	. .	...
*Yugoslavia .	...	648	612	...	...	...	35 587	31,593	...	59,310	52,654	...	...
Total Europe	*18,629*	*18,105*	*17,887*	*102.9*	*104.1*	*2,352,930*	*2,246,635*	*2,126,835*	*3,921,472*	*3,744,319*	*3,544,658*	*104.7*	*110.6*
*U S. S. R.	...	18,723	15,539	...	...	...	...	1,137,469	...	...	1,895,743	...	...
Canada . .	533	496	543	107.4	98.1	41,799	39.034	44,246	69,665	65.057	73,744	107.1	94.5
United States	3,224	3,058	3,513	105.4	91.8	239,400	197,998	227,441	399,000	329,997	379,068	120.9	105.3
*Palestine .	...	4	1	...	...	...	198	55	...	331	91	...	...
*Syria and Lebanon. . .	...	17	18	...	...	...	880	887	...	1,467	1,478	...	...
*Turkey. . .	...	130	108	...	...	...	3,956	2,676	...	6,593	4,460	...	...
*Algeria . s)	18	17	20	105.3	89.7	...	1,005	896	...	1,675	1,493	...	...
*Algeria . t)	...	24	23	...	...	...	1,549	1,127	...	2,582	1,878	...	...
*Tunis . . .	...	...	5	...	...	...	...	130	...	...	217	...	...
*Eritrea . . .	...	1)	1)	...	...	...	4	6	...	7	9	...	...
TOTALS. . .	**22,386**	**21,659**	**21,943**	**103.4**	**102.0**	**2,634,129**	**2,483,667**	**2,398,522**	**4,390,137**	**4,139,373**	**3,997,470**	**106.1**	**109.8**

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s) Early crop. — t) Late crop. — *) Countries not included in the totals. — 1) Less than 1,000 acres.
2) Preliminary figure at 1 June.

in the last ten years, namely in 1934, 243 million (404 million) and in 1928, 256 million (426 million).

For the U. S. S. R., no official estimate is available; but the production forecast by the plan is the largest to be realised for some 20 years and would exceed by about two thirds the five-year average.

Briefly, the year 1937 may be regarded as having been a good one for potatoes. The total production of the countries for which figures are available should be about 2,634 million centals (4,390 million bushels) against 2,484 million centals (4,139 million bushels) last year and an average of 2,399 million centals (3,997 million bushels), or respectively 6.1 per cent. and 9.8 per cent. higher.

V. B.

Current information on potatoes.

Germany: The rain that fell in September was very favourable to the main crop of potatoes, and at the beginning of October their crop condition, in the system of the country, was 2 4 as on 1 September this year.

Austria. At the end of September the lifting of potatoes was in progress. Frequent rains considerably hampered field-work. Early potatoes gave very good yields. The tubers are large and regular. The main crop however, was affected considerably by excessive moisture In the hilly and mountain regions yields are exceptionally high, paricularly in the case of industrial varieties.

Belgium The lifting of potatoes was carried out under favourable conditions. Yields are fair for lots planted with inspected tubers, otherwise they are mediocre.

France The potato crop, particularly that of late varieties, has been affected by the drought during August and the first ten days of September, and the yield is poor The late-season rains which fell over all the country during the middle of September were favourable to the crops still in the ground but also caused most of the tubers to put up new shoots, for this reason and also because of widespread attacks of mildew the quality of the crops was poor and conservation difficult.

Greece. According to the latest estimates the production of early potatoes is very large.

Hungary: By 5 October, the lifting of early potatoes was finished, and that of the main crop was in progress. On the whole, tubers are large and in good condition.

Irish Free State The weather during September was variable with a good deal of rain. Field work was carried out however without much difficulty A good yield of potatoes is promised.

Italy: A good potato crop is expected.

Luxemburg. The potato crop is quite large and the quality of the tubers generally good.

Netherlands. The crop condition of potatoes for food at the middle of September had deteriorated. The foliage died early and for that reason the tubers remained small. The same applies to potatoes for potato-starch works, but to a lesser degree, and in some areas they have given very satisfactory yields. Starch content exceeds the average. In the system of the country the crop condition of potatoes was as follows.

	13 Sept. 1937	13 Aug 1937	13 Sept 1936
Potatoes for food	63	67	68
Potatoes for potato-starch	67	69	65

Romania On 10 October, a normal production of potatoes was forecast.

United Kingdom The weather during September was generally fine and warm. The lifting of the main potato crop though not yet general, was progressing at the end of September in many districts of England and Wales and tubers were mostly of average size So far there is very little disease reported.

The yield per acre of potatoes in Great Britain was 152 centals (254 bushels). Yields generally were up to average and better than last year.

U S S R This year the potato crop is very large and considerably better then last year.

Argentina In September the planting of potatoes made good progress in the west of Buenos Aires, and was already finished in the provinces of Santa Fé and Mendoza.

Canada Hot, dry weather prevailed in the Maritime Provinces and parts of Ontario up to the middle of September, but main crops gave average yields and late crops promised generally very heavy yields In Ontario pests were well under control and lifting was in progress, crops being good In Quebec crops were heavy but diseased and of poor quality on the whole

Palestine The production of potatoes has been very much in excess of 1936. The preparation of areas for autumn planting under irrigation is in hand Fairly extensive areas will be grown in the Ghor el Fara and in the coastal plains, and stored seed will be generally utilized

Algeria For spring and summer crops yields were forecast as rather higher than last year.

Sugar-beet crop condition and estimates of beet-sugar production.

At the middle of September, the sugar-beet situation was rather uneven as a result of the very varied weather of the first half of the month Particularly in the countries of central Europe, the weather varied not only from one country to another but from one district to another, with the result that roots progressed differently between different areas. As, during the second half of the month also, the weather was changeable, the sugar-beet crop was still uneven at the end of September, though not to such a degree as a fortnight before Generally speaking, crop condition was satisfactory, even though in places the yield per acre was not altogether satisfactory

In the first fortnight of October, cold, wet weather prevailed over a large part of Europe, especially north and central Europe. The sky was cloudy and rains fell almost everywhere with a considerable drop in temperature, so that the weather bore quite an autumnal aspect.

These weather conditions had no effect on crops in the countries of southern Europe where the lifting of the beet was finished almost everywhere, nor were they unfavourable to the last stages of growth of the crop in central and north Europe; they did not even hamper the work of lifting, now begun and being effected normally.

1937-38 Season. — Analysis of sugar-beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1937	1936	1931-1935	1937	1936	1931-1935	1937	1936	1931-1935	1937	1936	1931-1935
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
					3rd. WEEK OF SEPTEMBER.							
Denmark	18.8	16.9	1) 15.2	15.8	14.6	1) 13.3	16.6	17.1	1) 15.7	3.1	2.9	1) 2.4
Poland	17.3	14.7	—	13.3	12.4	—	17.3	17.3	—	2.3	2.1	—
United Kingdom:												
England and Wales	12.6	18.1	—	14.6	20.1	—	16.6	15.8	—	2.1	2.9	—
Scotland	12.9	—	—	22.0	—	—	15.2	—	—	2.0	—	—
Czechoslovakia . .	21.3	19.4	12.3	15.5	14.7	13.4	16.1	18.3	16.3	3.4	3.6	2.0
					4th. WEEK OF SEPTEMBER.							
Germany	23.6	22.1	18.8	19.9	20.9	15.9	17.3	17.8	17.5	4.1	3.8	3.2
Denmark	19.9	17.6	2) 16.2	15.2	13.1	2) 13.9	16.6	17.6	2) 15.4	3.2	3.1	2) 2.6
Finland	18.5	18.0	1) 18.6	17.7	17.9	1) 24.8	—	—	1) 15.4	—	—	1) 2.9
France	16.9	18.2	18.5	16.4	24.3	16.3	16.7	15.5	17.0	3.1	2.8	3.1
Netherlands	25.2	26.0	3) 26.9	—	—	—	16.0	16.6	3) 16.7	4.0	4.3	3) 4.5
United Kingdom:												
England and Wales	13.5	19.2	—	14.4	20.4	—	16.7	15.9	—	2.3	3.0	—
Scotland	13 9	—	—	21.2	—	—	16.1	—	—	2.2	—	—
Czechoslovakia . .	22.0	20.1	16.7	14.4	13.9	10.7	16.5	18.4	18.4	3.6	3.7	3.1
					5th. WEEK OF SEPTEMBER.							
France	17 2	—	4) 23.1	15.2	—	4) 13.8	16.8	—	4) 16.7	2.9	—	4) 3.3
					1st. WEEK OF OCTOBER.							
Netherlands . . .	26.9	27.0	2) 28.2	—	—	—	16.9	22.3	2) 17 7	4.5	6.1	2) 5.0
Poland	18.5	16.7	2) 14.7	12 7	14 9	2) 9 9	17.7	18.1	2) 18.8	3.3	3.0	2) 2.7
United Kingdom.												
England and Wales	14.5	19.3	—	14.0	20.4	—	17.1	16.2	—	2.5	3.1	—
Scotland	14 1	—	—	20.9	—	—	16.8	—	—	2.4	—	—
Czechoslovakia . .	22.0	20.1	—	14.3	13.9	—	16.5	18.4	—	3.7	3.7	—
					2nd. WEEK OF OCTOBER.							
United Kingdom:												
England and Wales	15.3	—	—	13.8	—	—	17.8	—	—	2.7	—	—
Scotland	14.6	—	—	18.7	—	—	16.9	—	—	2.5	—	—

1) Average of four years — 2) Average of three years. — 3) Year 1935. — 4) Year 1932.

According to the latest analyses of sugar-beet, the sugar content per root is better in some countries than last year and on the whole in satisfactory, with the exception of Great Britain.

It has already been stated in last month's Bulletin that in view of the increase in the acreage under beet and the not unfavourable weather conditions of the present season, the European production this year will not be smaller than last year. The results of the usual inquiry, made this year by the Institute among the various Governments or societies of sugar manufacturers, reveal in fact that according to the first preliminary estimates, there will be in Europe (excluding the U. S. S. R.), during the season just begun, an increase of 3 per cent. in the production of sugar-beet for sugar, compared with last season, and

Production of Beet-sugar (raw).

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1937-38	
	1937-38 1)	1936-37	Average 1931-32 to 1935-36	1937-38 1)	1936-37	Average 1931-32 to 1935-36	1936-37 = 100	Average = 100
	Thousand centals			Short tons				
Germany	44,721	39,689	32,914	2,236,000	1,984,424	1,645,660	113	136
Austria	3,219	3,230	4,087	161,000	161,480	204,367	100	79
Belgium	5,313	5,367	5,308	266,000	268,345	265,389	99	100
Bulgaria	485	241	505	24,000	12,050	25,244	201	96
Denmark	5,181	4,987	3,841	259,000	249,300	192,043	104	135
Spain	4,519	4,982	6,006	226,000	249,000	300,314	91	75
Finland	220	242	165	10,000	12,122	8,242	91	134
France	20,095	19,191	21,930	1,004,700	959,600	1,096,508	105	92
Hungary	2,866	3,170	2,649	140,000	158,477	132,447	90	108
Irish Free State	2,072	2,148	1,014	104,000	107,414	50,686	96	204
Italy	7,423	7,187	7,422	371,100	359,000	371,072	103	100
Latvia	1,058	936	798	53,000	46,776	39,895	113	133
Lithuania	650	596	313	32,500	29,820	15,654	109	208
Netherlands	4,681	5,175	5,002	234,060	258,769	250,093	90	94
Poland	12,125	10,108	9,452	610,000	505,382	472,615	120	128
Romania	1,918	1,737	2,243	96,000	86,855	112,166	110	85
United Kingdom	10,538	12,991	10,294	527,000	649,527	514,685	81	102
Sweden	6,768	6,596	5,512	338,000	329,803	275,593	103	123
Switzerland	265	198	177	13,000	10,000	8,825	133	150
Czechoslovakia	15,883	16,019	14,063	794,130	800,930	703,128	99	113
Yugoslavia	1,010	2,221	1,749	50,500	110,073	87,457	45	58
Total Europe a)	*151,010*	*147,011*	*135,444*	*7,549,990*	*7,349,147*	*6,772,083*	*103*	*111*
U. S S R	55,116	44,071	29,733	2,800,000	2,203,000	1,486,648	125	185
Total Europe b)	*206,126*	*191,082*	*165,177*	*10,349,990*	*9,552,147*	*8,258,731*	*108*	*125*
Canada	1,213	1,725	1,374	61,000	86,268	68,682	70	88
United States	29,366	27,911	27,893	1,468,000	1,396,000	1,394,630	105	105
Total N. America	*30,579*	*29,636*	*29,267*	*1,529,000*	*1,482,268*	*1,463,312*	*103*	*104*
Japan	1,168	1,069	675	58,000	53,448	33,736	109	173
Turkey	1,323	1,453	1,066	70,000	72,626	53,298	91	124
Total Asia	*2,491*	*2,522*	*1,741*	*128,000*	*126,074*	*87,034*	*99*	*143*
TOTALS . . . a)	**184,080**	**179,169**	**166,452**	**9,206,990**	**8,957,489**	**8,322,429**	**103**	**111**
TOTALS . . . b)	**239,196**	**223,240**	**196,185**	**12,006,990**	**11,160,489**	**9,809,077**	**107**	**122**

a) Not including U. S S R — *b)* Including U. S. S. R — 1) Approximate data.

an increase of 11 per cent. compared with the previous five-year average, as is shown in the accompanying table. The following countries register an increase: Germany, Bulgaria, Denmark, France, Italy, Latvia, Lithuania, Poland, Romania, Sweden and Switzerland. Among the extra-European countries, the United States and Japan show increases. The total world production of beet-sugar (excluding the U. S. S. R.) should exceed by 3 per cent. that of the 1936-37 season and by 11 per cent. the average. It is however not unlikely that in view of the great caution with which the first estimates were forecast, the present figures may be exceeded in the course of sugar manufacture.

As regards the U. S. S. R., the estimate of production shows a very high figure. The figure given in the table was calculated on the basis of an increase compared with the average, in the yield per acre of sugar-beet, communicated by official reports.

E. R.

Current information on sugar.

Germany: The rain of September was very favourable to sugar-beet. Crop condition at the beginning of October was 2.4 as on 1 September this year.

Austria: Towards the end of September the foliage of sugar beet was generally healthy. The presence of cercospora was reported from many places. The sugar content is still rather low.

On 1 October crop condition, in the system of the country, was estimated at 2.1 against 2 2 on 1 September of this year and 2.4 on 1 October 1936.

Belgium. The mild and sunny weather of September favoured the growth of sugar-beet.

Bulgaria: The work of harvesting sugar-beet was delayed by the rain which fell towards the end of September and at the beginning of October. However, the sugar mills began regular work at the middle of September and the despatch of beet to the factories proceeded normally.

According to the most recent estimate production of beet sugar (rough) was at the end of the September 1937 about 30,000 centals (1,500 short tons) against 23,500 (1,200) in 1936 at the same date, percentage 127 4.

Area and production of sugar-beet.

COUNTRIES	AREA					PRODUCTION							
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100							1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 short tons				
Germany 1)	1,125	961	833	117 2	135 1	308,945	266,668	213,654	15,447	13,333	10,683	115 9	144 6
Austria	.	93	111	. . .	...	...	20 117	24,802	...	1,006	1,240	...	..
Belgium	118	117	131	100 5	90 4	..	32,880	35,019	...	1,644	1,751	. . .	...
Bulgaria	25	12	23	214 8	109 9	3,979	1,371	3,779	199	59	189	290,3	105 3
Denmark	102	94	105	107 7	96 8	...	2) 40,052	30,312	...	2) 2,003	1,516	...	...
Finland	8	8	6	106 0	129 0	1,653	1,830	1,381	83	91	69	90 4	119 8
France 3)	4) 702	710	770	—	—	...	177,604	187,168	...	8,880	9,358	...	...
Hungary	117	122	114	96.1	102 1	23,598	24,790	19 624	1,180	1,239	981	95 2	120 2
Italy .	320	302	230	105 8	139 0	..	58,552	53,300	...	2,928	2,665	...	.
Latvia .	...	29	28	.		...	2) 5,177	4,683	...	2) 259	234	...	.
Lithuania	20	17	11	114 3	173 5	..	3,758	1,976	. .	188	99		
Netherlands	103	106	103	97 8	100 3	31,218	36,117	34,492	1,561	1,806	1,725	86 4	90 5
Poland .	365	300	294	121 6	124.2	...	56,938	53,172	. .	2,817	2,659	.	. .
Unit King													
Engl and W	307	349	323	87.9	94 9	...	75,869	65,145	.	3,793	3,257	.	.
Scotland	7	7	4	106.3	196 6	...	1,525	732	.	76	37		
Sweden . .	126	127	113	99 3	111.9	40,367	39,675	35,261	2,018	1,984	1,763	101 7	114 5
Switzerland	...	4	4	...	.	...	1,433	1,249	...	72	62	.	.
Czechoslov	448	381	392	117.5	114.3	...	104,928	88,225	...	5,246	4,411	.	.
Yugoslavia .	...	75	85	...	. .	...	13,617	12,852	...	681	643	. .	
U S S R.	5) 2,943	3,104	3,238	94.8	90 9	...	...	243,261	...	...	12,163	...	..
Canada . .	47	56	49	83.8	95.0	8,660	11,900	9,262	433	595	463	72.8	93 5
U. S. A. . .	778	776	799	100.3	97.4	184,000	180,560	173 720	9,200	9,028	8,686	101.9	105 9

1) Not including crops for seed. — 2) Sugar beet for factories. — 3) Including beets for usines (108,000 acres and 28,504,000 centals or 1,425,000 sh tons in average of 1930 to 1934) — 4) Area sown on 1 June. — 5) Area estimated by Plan.

France The lifting of sugar-beet which had been delayed by rain was begun in certain districts at the beginning of October. Yields on the whole are reported as being hardly average in weight, but the sugar content is larger than last season. However as a result of the rains that fell during the second decade of September the growth of beet was resumed and the size improved. On the other hand the sugar content has diminished and the purity of the juices will not be so good, thereby offsetting the increase in weight.

Hungary: On 5 October. the lifting of sugar-beet was in progress The roots are on the whole large and in good condition.

Italy A good production of sugar-beet is forecast but the sugar content is rather low

The production of raw sugar to 30 September 1937 was 6,921,400 centals (346,000 short tons) against 7,016,200 (350,800) to 30 September 1936.

Netherlands· In the north and south of Holland at the middle of September discoloration of the leaves on a large scale was reported, and in Zeeland the growth of the roots was small Nevertheless on the whole the crop condition of sugar-beet was fairly satisfactory and in the system of the country was 65 on 13 September 1937 against 66 on 16 August 1937 and 71 on 14 September 1936

Poland At the beginning of September the lifting of sugar-beet had begun throughout the country It was interrupted at the beginning of the second decade by rain and was resumed when the fine hot weather returned The yield per acre is considered as above the average

Romania At the middle of October a poor yield per acre of sugar-beet was forecast, mainly as the result of the summer drought whose influence was not counteracted by the later weather

United Kingdom The weather during September was mainly fine and warm, and very favourable for field work The improvement in the sugar-beet crop reported in the previous month was maintained in some areas during September, but in others, with the early maturing of the crop, light yields were expected

The yield per acre of sugar-beet in Great Britain was 194 centals (9 7 short tons) which is much lower than last year and even below the average of the last 10 years.

Yugoslavia The cloudy, wet weather of summer and autumn was unfavourable for sugar-beet, whose production, according to unofficial and very approximate estimates, is forecast at about 9,500,000 centals (470,000 short tons) against 13,700,000 (680,000) last year The quality of the beet is also reported as rather bad, particularly as regards the sugar content

U S S R.. According to the report of the Commissar for Agriculture the Government plan, which prescribed an average yield per acre of about 180 centals (9 short tons), will be exceeded, and the total production of sugar-beet this season will be about one-third higher than that of last season

On 5 October the lifting of sugar-beet had been finished over 58 per cent of the cultivated area, and 73 per cent. of the beet lifted had been transported to the factories.

Barbados· It was reported in August that the weather continued to be dry except in certain areas where good rains were experienced.

British Guiana It was reported in August that some of the sugar factories were still grinding but with results not quite up to estimates.

Surinam: In the second quarter of the year, the planting out of sugar-cane was begun at a favourable moment owing to rainfall and its crop condition was good, as was also that of cane for harvesting. However, it was feared that the sugar content might have been affected by the rains of May and June. No serious insect damage was reported except for some attacks of grasshoppers.

Windward and Leeward Islands: It was reported in August that the sugar crop in Antigua was expected to reach 740,000 centals (37,000 short tons) as compared with 476,000 (23,800) last season and 387,000 (19,300) on the average of the preceding five seasons. Percentages: 155.2 and 191.2.

Good rains were experienced in St. Kitts but the sugar-canes were still short for this time of year. The rainfall in Grenada was reported to be below average for this season of the year.

Jamaica: It was reported in August that the 1936-37 sugar crop had just been completed with an outturn of 2,388,000 centals (119,000 short tons) compared with 2,049,000 (102,000) in 1935-36 and 1,403,000 (70,000) on the average of the preceding five seasons. Percentages: 116.6 and 170.2.

Trinidad: It was reported in August that the young sugar–canes were looking well and prospects for the coming crop appeared good.

Taiwan: The growth of sugar-cane on old plantations continued under normal conditions. The planting of cane on new plantations was carried out satisfactorily and its crop condition is good.

Netherlands Indies: The light rain that fell over most of the country was not sufficient for the growth of the cane, but on the whole the condition of the crop was satisfactory.

In the first fortnight of October little rain fell. This had an unfavourable effect on old plantations. The condition of the new plantations is satisfactory. In the highest districts the cane remained rather thin and there was great activity over the last plantings (Aneta).

Indo–China: In Tonkin the crop was on the whole good at the end of August, but plantations situated near hills were flooded in certain areas (Phuc yên and Hadong), the crop of the variety Mia-re in Hadong gave yields of raw cane per acre, varying from 70 to 270 bushels (4 to 13 short tons). In Annam the crop was quite good at the end of August as a result of recent rains. Crops were also good in Cochinchina.

Egypt: The weather conditions favoured the growth and formation of the internodes of the sugar cane, and the sugary substance began to be formed in the early planted cultivations. Few areas are being cut there for the local consumption. The state of the crop is normal.

According to the most recent estimate the area cultivated to sugar-cane in 1936-37 was about 67,000 acres against 63,000 in 1935-36 and 66,000 on the average of the five years ending 1934-35, percentages 106.6 and 100.5. The corresponding production is estimated at about 46,905,000 centals (2,345,000 short tons) against 46,064,000 (2,303,000) and 46,512,000 (2,326,000), percentages 101.8 and 100.8.

Mauritius: It was reported in August that all sugar mills were operating, and reports from the fields and factories were satisfactory.

Union of South Africa: The total production of cane-sugar from the mills for the 1937-38 season is provisionally estimated at 9,520,000 centals (476,000 short tons). This in an increase over last season's large production, the revised estimate for which is 8,928,180 centals (446,400 short tons), and is well above the average of 1931-32 to 1935-36, which was 7,408,230 centals (370,400 short tons)

The August sugar-cane crop condition averaged 7 per cent. below normal. The weather was warm and windy and light rains fell during the month, but more rain was badly needed.

General review of the production of vines in the Northern Hemisphere.

September was quite a favourable month for vines in the west-central area of the Europedn Continent, particularly in France, and also for vineyards not vintaged in Switzerland and Luxemburg; the rain that fell during the month and the rather high temperature enabled the gropes to grow and ripen normally; attacks of cochylis were reported however in Switzerland The condition of the Bulgarian vineyards also improved during the course of the month

On the other hand, weather conditions with excessive rain and cold were unfavourable in the other areas and in most of the European vine-growing countries A considerable reduction was made in the forecasts of Italy, Portugal, Greece, Romania and Austria.

At the middle of October the situation was roughly as follows: France, Algeria, Tunisia and French Morocco seemed to have a total outturn much below the average, but from 5 to 10 per cent higher than last year

The first estimate of the Italian production of grapes for wine gave a figure a little below the five-year average but slightly larger than last year. However, the bad weather that accompained the last stage of ripening and the vintage has, it is believed, reduced this comparatively satisfactory forecast, and it is not now certain whether the crop will reach the level of last year

In Portugal, the vintage is reported as varying from poor to average and is probably larger than last year, when it was very mediocre, and is, it is believed, of about the same size as the 1935 crop. Information is completely lacking for Spain, but it is certain that only a small crop may be expected.

Greece, which expected a good vintage, has seen the prospects decline more however, it seems, for table and grapes and grapes for drying than for grapes for wine. Information is quite contradictory. However, the production of wine seems to be mediocre and below the average but better than last year, when it was disastrous

In the Danubian area, Romania, which expected at the beginning of September quite a good vintage, seems now to have almost a small outturn, lower than last year and at least a quarter or a third below the average. Yugoslavia and Hungary are likely to have a production smaller than in 1936 but almost average. Only Bulgaria is likely to show good results.

In central Europe, the vintages appear to be quite good in Germany, a little worse than average in Austria, and about equal in Switzerland; on the whole, they seem to be definitely larger than last year.

In the United States, the monthly report at the end of September announced an excellent vintage in California, even larger than the record crop of 1935;

yields seemed to be poorer in the other lesser producing States, and, on the whole, the production of grapes at that time seemed to be a little above the maximum of the last six years, which was attained in 1935, and in any case would be much larger than in 1936. The increase in consumption, moreover, seems to require a further increase in the production of wine.

The total of these forecasts puts the total vintage of the northern hemisphere (excluding the U. S. S. R.) this year a little above the 1936 vintage but among the very small productions and very much below the average. It is undoubtedly dangerous at present to give actual figures, which must be so inaccurate, but it does not seem that we shall be very far out in predicting that the total production of the northern hemisphere, excluding the U. S. S. R., will be about 3,100,000,000 Imperial gallons (3,700,000,000 American gallons) and in all probability will not reach 3,300,000,000 (4,000,000,000). The 1936 production was calculated, on the basis of estimates not yet confirmed, at 2,930 (3,520) million, and the previous five-year average was 3,780 (4,780) million. It was 4,580 (5,490) a record, in 1935.

The very small size of the present vintage, following on the still poorer outturn of last year, is undoubtedly due to the unfavourable weather conditions of spring and summer in Europe and North Africa; the formation of the grapes was affected by the weather and their later growth was hampered both by lack and by excess of rain. An important factor in the poor size of the crop seems however to be a reduced productivity of vines from exhaustion ofter the superabundant vintages of 1934 and 1935. On the other hand, a reduction in the acreage cannot, it seems, be blamed; the expansion started by the excellent vintages of 1934 and 1935 was checked by the psychological effects of the very poor results obtained last year and, partly also, as a result of the measures taken to reabsorb surpluses and sustain the market.

In fact however, the decreases in acreage under vines, recorded in certain countries, were often much smaller than had been anticipated, and they seem to have been partly offset by the further increases among vine-growing countries of average or lesser importance.

Current information on vines.

Germany: The weather was favourable for the growth of vines in all the vine-growing areas. Clusters are numerous; mildew has only done slight damage in certain vineyards. A good, and in places even very good quality crop is forecast. Briefly, the year 1937 will yield a production of must of both good quality and quantity.

The crop condition of vines on 1 October was 2.5 in the system of the country against 2.4 on 1 September this year and 2.5 on 1 October 1936.

Austria: The vintage was begun prematurely owing to rot. Consequently the sugar content of the must is not satisfactory. Acidity is as high as 12 per thousaud. A larger production than last year is forecast. On 1 October, the crop condition of vines was 2.8 against 1.9 on 1 September this year and 2.9 on 1 October 1936.

Bulgaria: The variable but generally rather hot and dry weather of September improved the condition of vines, which had suffered from excessive moisture and cryptogamic diseases in the previous month In the middle of September the vintage had begun almost throughout the country and was about two weeks ahead of normal because there were fears of further rain, which had, in fact, begun to fall heavily at the beginning of October As a result of the law concerning wines and alcohols the production of red wine will be forbidden in areas which are not officially recognised as vine-growing The approximate statistics of the acreage of vineyards as well as the production of grapes and of wine are not yet available

France Though it was generally hot and dry, there was in the middle of September a widespread rainy period with violent storms in the southwest. In most of the areas not yet harvested, the grapes improved following the rain, drought had checked the spread of *encoriosa* and as a result of the rain the foliage everywhere is very healthy.

The vintage was almost everywhere early, being 10 to 15 days before the usual time It is confirmed that the crop will be scarcely average but better than that of 1936 in the four main departments It will be below that of last year in Bordelais, in the Gironde, Dordogne and Bourgogne and in certain parts of the west, but in other areas the yields are reported to be much higher than last year and in some cases quite satisfactory On the whole, production this year is still poor but nevertheless somewhat higher than in 1936 The grapes are everywhere of good quality or even excellent

Greece Drought and various cryptogamic diseases have seriously affected this year the production of grapes for wine, table grapes and especially grapes for drying.

Forecasts predict that the vintage of all three classes will not attain the level of last year

Hungary About 5 October, the vintage was in full swing throughout the country. Owing to rot, yields are rather low everywhere, while the quality is generally good.

Italy According to the most recent estimate the production of grapes for wine this year is 127,781,000 centals against 119,254,000 in 1936 and 134,929,000 on the average of the five years ending 1935, percentages 107 2 and 94 7

Luxemburg The sunny days of the last fortnight of September had a favourable influence on grapes and the quality of the wine promises to be good

According to the most recent estimate production of must this year is about 1,099,900 Imperial gallons (1,320 800 American gallons) against 1,524,900 (1,831,200) in 1936 and 1,724,000 (2,070,400) on the average of the five years ending 1935, percentages 72 1 and 63 8

Portugal At the end of August attacks of mildew and *oidium* were reported among vines The crop varies from poor to average

Romania About 10 October grape gathering was at its height According to private sources of information wine production will be of good quality but inferior to that of last year and the two preceding years

Yugoslavia At the beginning of October the vintage was begun in all the vine-growing areas of the country According to the first estimates, the production of grapes this year will be much below that of last year Also the percentage of alcohol in the wine will be rather poor according to the first analyses of the must

The frequent rains that fell in the summer and autumn caused the spread of peronospora, while the lack of sun reduced the sugar-content. The damage suffered by the vines was worst in the Banovine and Danubian areas

Palestine Weather conditions have been beneficial to the vegetation of vines and the maturation of grapes The crop is suffering slightly from attacks of mildew, but the production of grapes is normal, as it was last year

Syria and Lebanon: The dry weather and high temperature kept the vineyards in good or even excellent condition. No damage has been recorded. A large production is forecast.

Algeria: The vintage was completly finished at the end of September. The late rains during the month improved in places the yields of crops still on the vines. Fermentation took place normally.

At the end of September official estimates of production of wine were between 295 and 310 million Imperial gallons (355-370 American gallons) against 253 (404) in 1935 and an average of 304 (485) for 1931-1935. The quality of the wine is good. On 1 October, the condition of vines was considered as average.

French Morocco: The yields are rather irregular. Some vineyards still suffered from the "chergui" (hot wind) in the second half of August however at Fez and particularly at Meknès the crop, though not large, has been satisfactory. On the other hand, on the coastal lands, at Casablanca in some cases the crop did not reach maturity on account of the humidity and high temperatures, and wine-making has been at times difficult On the whole the crop appears rather poor

Tunisia: The vintage was finished at the end of September, wine-making was carried out at a favourable temperature It is confirmed that production is lower in volume than last year and the previous five-year average, but better in quality, with a high alcoholic content

Current information on olives.

France The olive crop is reported to be low on the Continent and in Corsica, where flies did severe damage in the plantations, violent winds also caused considerable shedding The yield per acre of oil, normally low because olives are only cultivated in the least fertile areas, was further reduced by the increasing activity of parasites which are resisted poorly, if at all

Greece: In all the areas where olive-trees are grown the olive crop is reported as exceptionally large this year To the end of August no serious attacks of *dacus* were reported.

According to the latest estimate, production of olive-oil this year is about 3,736,000 centals (44,364,000 American gallons) against 1,600,000 (21,024,000) in 1936 and 2,443,000 (32,107,000) on the average of the five years 1931-1935, percentages 211 0 and 138 2. Production of table olives this year, according to the same estimate is about 1,719,000 centals against 295,000 in 1936 and 712,000 on the average of the five years 1931-1935, percentages 582.3 and 241.4

In order to keep up the price of olive-oil, whose production this year is reported to be large also in the other main producing countries, the Greek Government decided to reduce by 70 per cent. the tax on olive-oil for export, from 1 October However, the import of oil-seeds still continues, encouraged by Government measures, partly to supply local oil needs until the new harvest and partly to defeat a bull speculation by dealers, who are storing stocks of olive-oil, remaining from last year's crop

Italy: At the middle of September the growth of olives was good but in some provinces there were complaints of shedding due to heavy rain.

Portugal: During August diseases did damage to olive trees The crops were reported to be average.

Palestine: Weather conditions have been beneficial to the vegetation of olive trees and to the development and maturation of olives Practically no attacks of insects or cryptogamic diseases have been reported Production of olives is greatly in excess of that of 1936

Syria and Lebanon · The favourable weather conditions and the absence of damage enable a very abundant olive production, well above the average, to be forecast. The condition of olive trees is excellent.

Algeria At the beginning of October, the official estimate of the probable production of olives was 3,129,500 centals, of which 2,906,000 were for oil and 224,000 for preserving The oil production was estimated at about 346,000 centals (4,550,000 American gallons) These figures are much larger than those of the 1936-37 season, which was one of the worst recorded for many years, and also exceed the previous five-year average by about 200,000 centals or 8 per cent for olives for oil, and by about 8,000 centals (Am gal) or 2 to 3 per cent. for oil, but by only about 2,000 centals (Am gal) for olives for preservation

These however are advanced forecasts and, particularly in the province of Constantine, present hopes will only be realised if rains come in October and November.

Tunisia Despite some damage done by hail, olive-trees benefited from the September rains in the south (Susa and Sfax areas) and production seems satisfactory. The crop is reported as average in the centre (Le Kef and Tunis) and good in the north (Bizerte) On the whole the crop seems likely to be average

The preliminary results and forecasts of the linseed crop of 1937-38.

The preliminary estimates at present available of the production of linseed in 1937-38 refer solely to the northern hemisphere (excluding the U S S R.), whose contribution to world production up to 1931 was about a third From that year to 1933 there was a marked decline in the cultivation of flax, especially in Europe and North America, while it remained fairly steady in India

The present flax season, under the influence of the policy of economic autarchy, followed by most countries, accentuates the tendency to an expansion of flax cultivation, that has taken place since 1934, especially in European countries, in view of the large variety of industrial uses of linseed. The statistics available of the area cultivated to flax in the various countries of the Continent show, in fact, that its cultivation has generally and considerably increased this year, compared with 1936, the only exception is in the case of Belgium, where the acreage was slightly smaller than last season, but was 111.3 per cent. larger than the five-year average of 1931 to 1935.

The large increase, compared with the average, that is noted in the case of Belgium is not restricted to that country but is general for all the European countries, with the exception of Hungary. The highest relative increase is shown by Germany which has almost quintupled the area cultivated to flax this year, while the smallest increase has taken place in Poland, which is among the principal producing countries of Europe, with about 40 per cent. and the Baltic group of countries with over 50 per cent In all other countries the increase in acreage is more than doubled compared with the average.

In Europe, the course of the present season was on the whole favourable for the growth of flax crops as well as for ripening and sowing, so that threshing

Area and production of flax.

Countries	†) Area					†) Production							
	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 pounds				
Fibre.													
Germany 1)	139	109	23	128.1	599.1	785	657	2) 163	78,543	65,679	2) 16,346	119.6	480.5
Austria	7	6	5	123.0	135.6	18	16	14	1,797	1,564	1,432	114.9	125.5
Belgium	70	72	33	96.9	211.3	...	480	230	...	48,029	22,977	...	...
Bulgaria	11	6	2	170.2	429.3	14	14	4	1,408	1,412	445	99.8	316.3
Estonia	77	70	50	110.4	156.1	225	192	143	22,477	19,211	14,313	117.0	157.0
Irish Free State	...	5	2	...	...	...	21	8	...	2,121	831	...	...
Finland 3)	9	11	11	87.4	87.0	...	...	36	...	...	3,571	...	...
France	...	97	45	...	...	...	563	253	...	56,317	25,278	...	...
Hungary	10	9	4) 7	112.5	136.2	38	39	4) 24	3,808	3,868	4) 2,395	98.4	159.0
Italy	5) 25	15	9	—	—	678	71	44	...	7,130	4,361	...	...
Latvia	171	166	113	103.0	150.8	566	409	334	56,571	40,874	33,431	138.4	169.2
Lithuania 3)	218	208	145	105.0	150.7	679	635	472	67,865	63,482	47,233	106.9	143.7
Netherlands	43	33	14	130.6	298.4	302	271	105	30,192	27,137	10,473	111.3	288.3
Poland	360	330	257	109 1	139.9	...	821	693	...	82,109	69,297	...	...
Romania	...	71	62	...	...	...	261	159	...	26,090	15,930	...	...
Un. Kingd. North Ir	19	25	13	75.2	143.0	...	113	68	...	11,274	6,839	...	...
Czechoslovakia	48	40	23	118 1	209 8	227	210	100	22,687	21,026	9,962	107.9	227 7
Yugoslavia	...	34	29	...	. .	...	264	225	...	26,352	22,481	...	...
U. S. S. R. 6)	7) 4,709	5,310	5,689	88.7	82.8	...	...	11,832	...	...	1,183,168	...	...
Egypt	7	6	4	109.1	176.5	44	41	23	4,418	4,128	2,287	107.0	193.1
Linseed.													
									1,000 bushels of 56 pounds				
Germany	139	109	23	128.1	599.1	847	715	2) 192	1,512	1,276	2) 343	118.5	441.0
Austria	4	3	3	108.2	112.3	12	13	12	22	24	22	92.2	100.0
Belgium	70	72	33	96.9	211.3	...	433	175	...	772	313	...	...
Bulgaria	11	6	2	170.2	429.3	37	42	10	67	75	19	89.3	359.4
Estonia	77	70	50	110.4	156.1	...	247	147	...	440	262	...	...
France	...	97	45	...	...	...	...	188	...	...	335	...	...
Hungary	15	15	4) 27	103.4	55.5	95	95	4) 129	169	169	4) 230	100.0	73.3
Italy	5) 25	16	12	—	—	...	84	63	...	149	113	...	...
Latvia	171	166	113	103.0	150.8	517	406	307	924	725	549	127.4	168.4
Lithuania 3)	218	208	145	105.0	150.7	847	809	555	1,512	1,444	991	104.7	152.7
Netherlands	43	33	14	130.6	298.4	...	240	89	...	428	159	...	...
Poland	360	330	257	109.1	139.9	...	1,579	1,157	...	2,820	2,066	...	...
Romania	...	71	62	...	...	...	299	239	...	534	426	...	...
Czechoslovakia	48	40	23	118.1	209.8	187	161	78	335	288	139	116.4	241.5
Jugoslavia	...	34	29	...	...	...	34	19	...	60	34	...	...
U. S. S. R.	8) 5,855	8) 5,798	6,766	101.0	86.5	...	...	16,808	...	...	30,014	...	...
Canada	241	468	377	51.5	63.9	415	1,005	940	741	1,795	1,769	41.3	44.1
United States	1,081	1,180	1,770	91.6	61.1	4,278	3,308	5.639	7,640	5,908	10,070	129.3	75.9
India	3,594	3,457	3,230	104.0	111.3	9,363	8,691	8,893	16,720	15,520	15,880	107.7	105.3
Egypt	7	6	4	109.1	176.5	46	42	28	82	75	50	109.0	162.2
Eritrea	...	11	4	...	...	...	46	21	...	82	37	...	...
Fr Morocco	...	43	49	...	...	146	212	223	260	378	399	68.7	65,1
Argentina	9) 6,301	9) 7,438	9) 7,514	84.7	83.9	...	40,786	39,518	...	72,832	70,568	...	...
Uruguay	...	469	350	...	...	...	2,745	1,749	...	4,901	3,124	...	...

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†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) The corresponding figures in dry stalks (flax in raw «Rohstongel») are as follows. 1937-392,700,000 lb.; 1936-328,400,000 lb, average 81,700,000 lb. — 2) Average 1933 to 1935. — 3) Flax and hemp. — 4) Average 1934 and 1935 — 5) Total area (for fibre and for seed). — 6) "Dolgunetz" Variety — 7) Area harvested on 25 August representing 93 % of the area fixed by the Plan (5,108,700 acres). — 8) Total area according to the plan, — 9) Area sown.

results for the countries which have already published their preliminary estimates are very satisfactory.

The German linseed crop this season constitutes an absolute record and places this country in the second position in Europe. In Lithuania, where the size of the crop this year is about the same as in Germany, the increase compared with last year and the average corresponds exactly to the respective increases in acreage.

In Latvia, weather conditions were more favourable for the crop, and production this year is proportionately higher than in 1936 and the average.

Poland has not yet communicated its estimate of production, but according to the crop report issued at the time of the harvest, it will be below average. The crop estimates also of Belgium, Estonia, France, the Netherlands, Romania, Italy and other flax countries of lesser importance are not available. With the exception of the Netherlands and France, where crops were affected by bad weather conditions (in the latter country the estimated acreage also is smaller than in 1936) the information available for all countries forecasts yields varying from average to good.

In U. S. S. R., the total area forecast by the plan for the present season remained almost the same as last year, but shows a decrease of 13.5 per cent. below the average. U. S. S R. occupies the second place among the linseed producing countries of the world with a crop which varied, during recent years, between a minimum of 15,000,000 centals (27,000,000 bushels) in 1934 and a maximum of 19,000,000 (33,000,000 bushels) in 1931, or respectively 19 5 and 20.3 per cent of world production For the present season all estimates of production are still lacking. The information recently supplied by the U. S. S. R. Government indicates that the crop will be larger than last year's, which had been calculated according to the plan at 17,000,000 centals (30,000,000 bushels).

It is well known that, although it is a great flax producer, the U. S. S. R. figures in commercial exports of linseed with negligible quantities, for its production is almost entirely absorbed within the country.

In North America, in the United States and Canada, the area cultivated to flax in 1937 showed a further diminution. For the two countries together the total area of the crop has been reduced more than in any other year since the War, with the exception of 1934. The decrease is 19.8 per cent. compared with last year and 38.4 per cent. compared with the average. However, the largest decrease was in Canada which has reduced by about one half the area under flax compared with 1936, while the corresponding decrease in the United States was only 8.4 per cent. Compared with the average, the reduction of the two countries respectively exceeds one third, with a larger proportion in the United States.

Nevertheless, the total production of North American countries, according to the latest estimates is 4,694,000 centals (8,382,000 bushels) and shows an increase of 8.8 per cent. over last year 4,314,000 (7,704,000) but is still 28.7 per cent. below the five-year average 1931-35 (6,579,000) (11,748,000).

The season was favourable on the whole in the United States but very unfavourable in Canada, where summer drought destroyed a large part of the crop, which for that reason was reported to be the worst for a great number of years.

In British India, the area cultivated to flax in the last two years showed a recovery compared with previous seasons and for the present season it has reached the highest level for the last ten years; the crop also exceeds those of the same period with the exception of the 1935 production, which was only about 44,000 centals (79,000 bushels) larger. The highest yields per acre were obtained in the United Provinces which normally ranks highest among the producing provinces, despite the smaller acreage than in the Central Provinces.

In Argentina, the beginning of the present flax season was on the whole unfavourable as a result of drought which hindered the preparation of the soil and sowings particularly in the provinces of Còrdoba, Santa-Fé and also in that of Buenos Aires. Only in the province of Entre Rios were weather conditions normal. The first estimate of the area sown under flax this year, which was despatched last month by the Argentine Government, shows the abnormal situation at the beginning of the present flax season. For the total of the country, a decrease of 15.3 per cent below the acreage of the 1936-37 season and 16.1 per cent below the previous five-year average is reported. The decrease in area is general for all the producing area of the country with the exception of the province of Entre Rios where, on the other hand, an increase of 15 per cent over that of last year, which was 1,290,000 acres, is reforted.

The condition of the crop was rather precarious up to the middle of September, particularly in the provinces of Santa Fé and Cordoba, where germination and growth were seriously effected by drought, in the province of Buenos Aires, crop condition varied from average to good, while in the province of Entre Rios very good results were promised. Since then, according to the lasest communiqué of the Ministry of Agriculture et Buenos Aires, good general rains fell and the general situation improved. The crop condition of flax on 20 October was considered as good.

Any estimate of the next Argentine crop, made at this time of the season, is liable to be a long way off the final results, for the period from now to the harvest is the most critical in the growth of the crop.

Furthermore, this year, to the normal risks are added other doubtful elements, especially the late development of the crop and the possibility that the sowing done, as it seems, after the rains of September, may cause an increase in the figure of the previous estimate to an extent that cannot even approximately be forecast at present.

These two exceptional circumstances make it still more difficult than usual to forecast the next Argentine crop; however, counting on a normal course of the season until the harvest and supposing that the change between the first and second estimates of the acreage sown will not be considerable, the Argentine production of linseed may be expected to be between 32 and 33 million centals (57 and 59 million bushels), which would be much smaller than in the 1936-37 season and the previous five-year average, which were respectively 41 million (73 million) and 39 million (70 million).

No estimate of the area under flax is yet available for Uruguay, which occupied third place among the exporters of linseed; reports at our disposal from a private source predict that the acreage in 1937-38 will not reach the figure of the previous season, though it would be above the average.

Finally, in French Morocco the crop this year is about a third smaller than last year and the average.

The main features of the present flax season may be summarised as follows: the acreage has further increased over last year in Europe and India; but a considerable decline took place in Argentina and North America; in the U. S. S. R. it is practically unchanged.

Crop results are reported as generally good in Europe and India but poor in North America In Argentina also a small outturn is expected.

A. DI FULVIO

Current information on flax.

Irish Free State· Weather conditions in September were variable but rather wet. The work of lifting and housing of flax was not seriously hampered however The yield is estimated as below average.

U S S R According to the report of the Commissar for Agriculture the production of flax this year is larger than last year

Argentina (Telegram of 20 October) The growth of flax, favoured by general rains, has been good.

Current information on cotton.

Greece According to the latest official reports, the production of cotton this year is reported to be exceptionally large, and, if the weather continues to be favourable until the end of the harvest, the production of cotton will not only cover, for the first time, the needs of the national textile industry, but will also leave a considerable surplus for export To assist the sale of this new article of export the government has granted a bounty of 10 drachma per kilogram of cotton exported abroad in exchange for a free currency Furthermore to prevent a drop in prices the Agricultural Bank has decided to grant this year to cotton growers loans up to 8 per cent of the value of their production

Italy At the middle of September production of cotton, with the exception of the provinces of Foggia and Caltanissetta, was considered good.

U S S R According to the report of the Commissar of Agriculture the cotton crop will be very large this year and the figure, forecast by the plan, of 3,482,000 bales of 478 lb net weight will be considerably exceeded. Last year's production was 3,551,000 bales

On 5 October the annual plan of purchasing the cotton had been completed over 38.7 per cent against 34 per cent at the corresponding date last year.

Argentina According to the latest estimate made by the « Junta Nacional del Algodón » the production of ginned cotton in the 1936-37 season has fallen about

Area and production of cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38		1937/1938	1936/1937	Average 1931/32 to 1935/36	1937/1938	1936/1937	Average 1931/32 to 1935/36	% 1937/38	
				1936/1937 = 100	Average = 100							1936/1937 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bales of 478 lb				
Bulgaria	113	72	44	156,4	254 6	197	137	74	41	29	16	143 2	264 4
Greece 1)	181	154	74	117 5	245 4	469	279	146	98	58	31	168.4	321.6
U. S S R .	1) 5,163	5,024	5,068	—	—	1) 16,645	16,976	9,309	1) 3,482	3,551	1,947	—	—
United States 2) .	33,736	30,028	31,697	112 3	106 4	83,999	59,267	60,629	17,573	12,399	12,684	141.7	138 5
Mexico	856	844	390	101 5	219.3	1,558	1,717	1,000	326	359	209	90.8	155.9
Montserrat 3)	5	5	3	109 9	170 6	5	5	6	1	1	1	109 4	84 4
Burma .	537	519	396	103 5	135 6	...	452	318	..	95	67	..	..
India 4) 5)	20 715	* 20,481	19,724	101 1	105 0	—	—	—	—	—	—	—	—
Egypt	2,053	1,781	1,657	115.3	123 9	7) 11,035	9,021	7,127	7) 2,309	1,887	1,491	122.3	154 8
Nyasaland	—	—	44	—	—	40	48	35	8	10	7	82.5	115 3

1) According to the Plan — 2) See *Summary of Government Cotton Reports* — 3) *Sea Island* cotton — 4) Not including Burma — 5) Second report — 6) Revised estimate — 7) First estimate

42,000 bales of 478 lb net weight compared with the July estimate, and is now 60 per cent smaller than last season's and 23 per cent below the average of 1931/32 to 1934/35 This very poor crop is due almost entirely to the severe damage done by the prolonged drought in the National Territory of the Chaco which normally produces 70 per cent of the total Argentine production In this province the yield estimated at present is hardly 315 lb. of unginned cotton per acre against an average of 760 lb during the last 15 years. The total area cultivated to cotton in the 1936-37 season is now estimated at 713,500 acres, against a previous estimate of 1,015,400. This is 6 5 per cent below the 1935-36 acreage but 63 5 % above the average of the previous fine seasons

United States During the week ending 22 September, the weather was very favourable over most sections of the cotton belt, abundant sunshine with seasonable temperatures proving very helpful to the crop in the eastern sections The progress and condition of the crop in Texas was generally good, with picking and ginning progressing rapidly and being virtually completed in the south

During the following week weather generally favoured the picking of the cotton crop and the harvest progressed rapidly virtually everywhere.

According to the Cotton Report based upon conditions as on 1 October, and issued on 8 October, a crop of 17,573,000 bales is forecast, which would be the second largest crop on record, the record crop being that of 1926, with 17,977,000 bales This is an increase of 1,475,000 bales on the preceding report, and compares with 12,399,000 bales in 1936, 10,638,000 bales in 1935, and an average of 14,666,000 bales during the five-year period 1928-1932. The indicated yield per acre of 249 3 lb of lint is the highest on record for the United States, and compares with 197 6 lb in 1936, and an average of 169.9 lb. for the ten-year period 1923-1932. The increase in prospective production over that indicated last month, which is general throughout the cotton belt, is due to better than average condition for the maturing of the crop, together with extremely light loss from boll weevils. Harvesting was progressing rapidly, although a general shortage of pickers was reported. Ginnings to 1 October amounted to 8,259,000 running bales, this is by far the largest figure on record for that date of the season, and indicates that about 4 million bales have been ginned in two weeks, after 16 September (See *Summary of Government Cotton Reports*).

During the week ending 12 October, temperatures in the Cotton belt averaged from somewhat below normal in the North-east to decidedly above normal in more southern portions There was considerable rain in the North-east parts of the western belt, but otherwise mostly fair weather prevailed Picking made good advance except in some eastern sections and locally in the West In Texas picking and ginning have progressed favourably, but there is little prospect for a top crop in northern districts because of the previous dryness.

Summary of Government cotton reports, by cotton season.

	Provisional estimates for dates indicated 1937/38	Final estimates		Percent 1937/38	
Report referred to 1 July		1936/37	Average 1931/32 to 1935/36	1936/37 = 100	Aver. = 100
Area in cultivation (acres)	34 192,000	30,960 000	34 382 000	110 4	99 4
Report referred to 1 August					
Area left for harvest (acres)	1) 33 429 000	2) 30 028 000	2) 31,697 000	111 3	105 5
Crop condition (per cent of normal)	81	72	3) 69	—	—
Production 4)	15 593 000	12 399 000	12 684 000	125 8	122 9
Yield of lint per acre, in lb	223 3	197 6	3) 179 3	113 0	124 5
Cotton ginned to 1 August 5)	142,983	41,130	88,771	347 7	161 1
Cotton ginned to 16 August 5)	515 000	208,500	294 690	247 0	174 8
Report referred to 1 September					
Area left for harvest (acres)	6) 33,736,000	2) 30,028,000	2) 31,697,000	112 3	106 4
Crop condition (per cent of normal) . .	75	59	3) 60	—	—
Production 4)	16,098,000	12,399,000	12,684,000	129 8	126 9
Yield of lint per acre, in lb	228 5	197 6	3) 179 3	115 6	127 4
Cotton ginned to 1 September 5)	1,874,674	1,374,247	1,072,995	136 4	174 7
Cotton ginned to 16 September 5)	4,261,422	3,709,965	2 657,216	115 0	160 6
Report referred to 1 October					
Crop condition (per cent of normal) . . .	70	62	3) 59	—	—
Production 4)	17,573,000	12,399,000	12,684,000	141 7	138 5
Yield of lint per acre, in lb	249 3	197 6	3) 179 3	126 2	139 0
Cotton ginned to 1 October 5) . . .	8,259,445	6,031,950	5,069,634	136 9	162 9
Cotton ginned to 18 October 5)	11,068,000	8,569,476	7,749,691	129 2	142 8

1) Area in cultivation on 1 July less the ten year (1927-36) average abandonment 2 3 percent — 2) Area actually harvested — 3) Ten year (1926 35) average — 4) In bales of 478 lb net weight and exclusive of linters — 5) In running bales, counting round bales as half bales and exclusive of linters — 6) Area in cultivation on 1 July less 1 3 per cent of abandonment

British West Indies. Area and production of cotton are estimated as follows:

	1936-37	1935-36	Average 1930-31 to 1934-35	% 1936-37 1935-36 = 100	% 1936-37 Average = 100
Area (in acres).					
Sea Island variety.					
Antigua	937	612	493	152,8	189,5
Barbados	191	247	1,012	77.0	18.8
British Virgin Islands	250	150	1) 50	165.6	505.0
Montserrat	4,550	4,438	2,858	102 5	159.1
St Kitts-Nevis	5,000	3,180	1,319	157.2	378 8
St Vincent	5,000	3,540	1,821	141.2	274.5
Total	*15,928*	*12,167*	*7,553*	*130 8*	*210 7*
Marie Galante variety					
Grenada	5,250	5,250	4,250	100 0	123 5
St Vincent	720	721	820	99,7	87.7
Total	*5,970*	*5,971*	*5,070*	*100 0*	*117 7*
Production (in bales of 478 lb)					
Sea Island variety					
Antigua	168	246	89	68 4	188 1
Barbados	40	20	197	197 7	20 4
British Virgin Islands	52	24	—	221 6	—
Montserrat	957	2,126	1,123	45 0	85 2
St Kitts-Nevis	1,059	1,015	334	104 3	316 6
St Vincent	715	830	490	86 1	146 0
Total	*2,991*	*4,261*	*2,233*	*70 2*	*133 9*
Marie Galante variety					
Grenada	533	586	688	91 0	77 5
St. Vincent	90	143	114	63 2	79 0
Total	*623*	*729*	*802*	*85 6*	*77 7*

1) Season 1930 31

India Weather conditions at sowing time in August were not quite favourable, as sowings are reported to have been delayed in places by deficiency or excess of rain The condition and prospects of the crop, on the whole, are reported in the first forecast to have been fairly good.

Rainfall was heavy towards the end of September in north-east India but by the end of the first week of October the monsoon was withdrawing from the country Picking of cotton had begun in the Sind area at the beginning of October.

(Telegram of 22 October): The 2nd estimate of the cotton acreage in Madras is 656,700 acres. Sowings are proceeding normally and the condition of standing crops is generally satisfactory.

The 2nd estimate of the acreage planted to cotton in the Punjab is 3,773,000 as against a corresponding figure of 3,490,000 last year and a five-year average of 2,449,000. Percentages: 108.1 and 154.1 The crop condition in the system of the country was 89 per cent. of normal.

Indo-China: In Annam, the crop gave an unsatisfactory yield in Phu yên, owing to the heat and violent winds from the interior; on the other hand in Ninh thuân and Binh thuân, growth was good at the end of August.

French West Africa: The final estimates of the 1936-37 cotton season in French Sudan are as follows: 78,900 centals of unginned cotton against 44,100 in 1935-36, yielding 23,100 centals (4,800 bales) of ginned cotton against 13,000 (2,700). The increase over the previous season is due to an increase in acreage and results would have been still better if late rains had not fallen in November and attacks of crickets had not reduced yields. The extension of area was restricted to selected varieties and, especially, Budi, which seems to be particularly suitable and whose production was more than tripled compared with 1935-36, and at present it represents 39 per cent. of the quantity sold commercially, against 27 per cent. for Sahel cotton, 19 per cent. for Allen and only 15 per cent. for native cotton (30 per cent. in 1935-36).

The above figures refer only to cotton sold for export, which includes a third at the most of the native cotton variety, whose production in 1937 is 45,000 to 55,000 centals of unginned cotton.

Algeria: Cotton plantations rather suffered from the drop in temperature that occurred in September, causing a reddening of the plants; also a rather serious attack of « earias » was reported. Nevertheless, a rather better outturn than last year was anticipated.

Egypt: Weather conditions in September were very favourable for the ripening and opening of the bolls. Picking was in full swing and in places was even finished and already the stalks of the cotton plant had been removed. The drop in the price of cotton and rise in the cost of labour, which, in upper Egypt, had been in places unobtainable, delayed for some days the beginning of the harvest. The average yield per acre this year is an absolute record being about 535 lb. of lint. In contrast to the volume of the crop, which is the largest one on record for Egypt, harvesting and ginning are rather slow.

The percentages of the areas of the different varieties of cotton from 1913 to 1937 are as follows:

PERIODS	VARIETIES									
	Mit 'Afifi, Yoannovitch, Nubâri, 'Abbâsi 1)	Sakellaridis	Ashmûni	Zagôra 2)	Fuâdi	Pilion 3)	Maarad 4)	Giza 7	Other varieties	Total area
	%	%	%	%	%	%	%	%	%	
1937	—	8.1	57.8		0.6	—	4.1	26.3	5) 3.1	100.0
1936	—	9.4	58.2		1.1	—	4.2	23.7	5) 3.4	100.0
1935	—	17.8	56.2		2.0	—	4.9	16.1	3.0	100.0
1934	—	24.2	51.1		3.3	—	3.1	16.6	2.7	100.0
1933	—	21.7	56.0		2.7	—	6.1	6.9	6.6	100.0
Average 1928 to 1932	—	38.9	44.8		—	5.9	1.3	—	9.1	100.0
» 1923 » 1927	0.8	57.6	36.0		—	3.4	—	—	2.2	100.0
» 1918 » 1922	4.3	73.5	17.2	3.8	—	—	—	—	1.2	100.0
» 1913 » 1917	36.5	42.6	20.6	—	—	—	—	—	0.3	100.0

Note: The varieties Ashmûni and Zagôra, known commonly as "Uppers" have a staple length from 1 1/16" to 1 1/8"; all other varieties have a staple length from 1 1/4" to 1 1/2", and some of them (Maarad, Giza 26, Sakha 4 and Sakha 11) reach even 1 9/16".

1) These varieties ceased to appear in the statistics in 1924. — 2) Appeared for the first time in 1920 with a per cent. of 4.6. — 3) Appeared in 1924 with a per cent. of 2.8 and disappeared in 1933. — 4) Appeared in 1932 with a per cent. of 6.4. — 5) Mainly Sakha 4, Giza 12, Giza 3, Giza 26, Casulli and Nahda.

Cotton ginned up to the end of September, in bales of 478 lb. net weight, was as follows

Varieties	1937	1936	1935	1934	1933	1932	1931
Sakellaridis	4,050	5,550	3 840	8 070	1,080	5 730	4,230
Other varieties above							
1 ³/₈″ . .	65 330	52,790	20,820	22 710	3 200	5 570	71,440
1 ¹/₄″	3,880	2,440	2,500	2,880	1 090	3 130	
1 ¹/₈″ . . .	279 110	316,080	179,340	197 960	128 700	73,070	
Total . . .	*352,370*	*376,860*	*206,350*	*231 620*	*134,070*	*86,500*	*75,670*
Scarto .	4,060	5,560	2,600	3,120	1 170	1,270	1,330
Total production (including *Scarto*) . .	*) 2,308,600	1,887,200	1,768,600	1 565,600	1 776,900	1,027 000	1,317 300

*) Second estimate

The area of each cotton variety cultivated in 1937, in comparison with the corresponding figures of the five preceding years is as follows

Varieties	1937	1936	1935	1934	1933	1932
			(Thousands acres)			
Maarad	83	74	85	57	114	72
Sakha 4	43	43	28	10	48	—
Sakellaridis	167	168	309	436	406	383
Giza 7	539	423	280	207	129	36
Giza 12	17	6	—	—	—	—
Fuâdi	12	20	33	41	51	18
Giza 3	3	9	11	10	7	7
Ashmûni and Zagôra	1 186	1 036	974	919	1 049	526
Other varieties	1) 2	1	13	28	69	93
Total	*2,053*	*1,781*	*1,733*	*1 798*	*1,873*	*1,135*

1) Mostly Giza 26

Classification of the Egyptian cotton crop by staple length, in bales of 478 lb net weight

(000's omitted)

Varieties	1937		1936		1935		1934		1933		1932	
	Acres	Bales *)	Acres	Bales	Acres	Bales	Acres	Bales	Acres	Bales	Acres	Bales
1) Long staple above 1 ³/₈″ (including *Sakellaridis*)	836 (167)	750 (114)	709 (168)	592 (108)	705 (309)	551 (187)	804 (436)	460 (208)	700 (406)	442 (239)	512 (383)	361 (252)
2) Long medium staple above 1 ¹/₄″	31	32	36	30	54	43	68	44	118	76	97	76
3) Medium staple above 1 ¹/₈″	1 186	1 482	1,036	1,223	974	1,135	926	1 028	1,055	1 225	526	567
Scarto	—	45	—	42	—	40	—	34	—	34	—	23
Total	*2,053*	*2,309*	*1,781*	*1 887*	*1 733*	*1 769*	*1 798*	*1 566*	*1 873*	*1 777*	*1 135*	*1,027*

*) First estimate — 1) Maarad, Sakha 4, Sakellaridis, Giza 26, Giza 7 etc — 2) Giza 12 Fuâdi Giza 3, etc — 3) Ashmûni and Zagôra

Nigeria: It was reported in August that ginning of cotton in Northern Nigeria was finished, the crop available for export being 160,000 centals (33,500 bales of 478 lb.) as compared with 192,000 (40,200) last season. Percentage: 83.3

Nyasaland: It was reported in August that the cotton crop had suffered serious damage from bollworm.

Anglo-Egyptian Sudan: According to the latest estimate, the area cultivated to cotton in 1936-37 was 475,000 acres of which more than 62 per cent. was devoted to the Sakellaridis variety. Compared with the acreage planted in 1935-36, there is an increase of 21 per cent. and of 35.6 per cent compared with the previous five-year average. The production of ginned cotton is 268,000 bales of 478 lb. net weight, against 201,000 in 1935-36 and an average of 158,000; percentages· 133 3 and 169.4. Abont 87 per cent. of the cotton produced in 1936-37 are of the Sakellaridis variety. In Kordofan, American rain-grown cotton shows further expansion.

Tanganyika: It was reported in August that weather had been dry generally, but slight showers had occurred at the coast. Cotton buying had begun in the Lake Province; it was expected that the total crop would fall short of the original estimates·

Current information on hemp.

France: The harvest was finished in the west at the beginning of October and retting was in progress under good conditions.

Area and production of hemp.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100
	1,000 acres					1,000 pounds				
				Fibre.						
Germany 1) .	17	14	2	120 8	703 2	. .	9,929	2) 8,238	.	
Austria	3)	1	1	81.3	59 2	176	184	286	95 7	61.6
Bulgaria	21	15	13	137 1	162 1	9,714	7,094	5,012	136 9	193 8
France	...	9	7	...	.	..	9,524	6,995	.	...
Italy.	215	188	147	114.5	146 3	..	192,484	129,883	...	...
Poland	85	83	80	101 4	106 0	...	26,875	25,331	...	..
Romania	. .	124	117	..	...	...	64,433	55,793	...	...
Czechoslovakia .	18	18	19	96 9	93 6	8,929	12,711	12,005	70.2	74.4
Yugoslavia	...	132	83	...	...	...	114,532	64,473	...	...
U.S.S R.	4) 1,511	1,517	1,812	99 6	83 4	...	...	367 992	...	...
Syria & Lebanon .	...	5	6	...	...	...	3,237	3,410	...	...
				Hempseed.						
Germany	17	14	2	120.8	703 2	...	7,604	4,308	...	...
Austria	3)	3)	3)	95.2	120.0	132	127	104	104.2	126.2
Bulgaria	21	15	13	137 1	162.1	8,448	5,587	3,755	151.2	225.0
France	...	9	7	...	...	...	...	1 859	...	...
Poland	85	83	80	101.4	106.0	...	42,896	39,009	...	...
Romania	...	124	117	. .	...	...	50,919	43,865	...	...
Czechoslovakia . .	18	18	19	96.9	93.6	5,634	8,379	7,918	67.2	71.2

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1) Corresponding data of production, expressed in terms of air-dried stalks (Rohstengel) are as follows: 1936 — 49,644,000 lb.; 1935 — 41,191,000 lb. — 2) Year 1935 — 3) Area less than 500 acres. — 4) Area forecast by the plan.

Greece: According to reports from the Ministry of Agriculture the experiments in hemp growing made by the Ministry have given very satisfactory results. The area under hemp in Macedonia reached this year about 300 acres. Naturally, this crop is very difficult to adapt to the climatic and soil conditions of Greece even in the north but the Ministry of Agriculture attaches a great deal of importance to the expansion of this crop particularly in order to obtain raw material for the national textile industries, and to restrict thereby importation from abroad.

Hungary: The production of hempseed is satisfactory and the quality of the fibre average.

Yugoslavia: The production of hemp for fibre is reported this year to be rather poor and will probably be well below last year's and the average of 1931-35.

Argentina: In September the sowing of hemp was in progress, generally favoured by weather conditions.

Current information on hops.

France: Picking, which was finished at the beginning of October, gave good yields of excellent quality.

Hungary: The production of hops has been rather above average.

United Kingdom: Hops finished their growth well and the quality of the crop was excellent.

Area and production of hops.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100
	1,000 acres					1,000 pounds				
Germany	23	25	24	89.5	96.4	...	22,271	15,285	...	...
Austria	...	1)	1)	...	...	...	60	98	...	...
Belgium	2	2	2	95.9	122.8	...	3,172	1,924	...	...
France	...	5	5	...	...	...	3,646	3,439	...	...
Hungary	...	1)	1)	...	...	...	199	166	...	...
Poland	9	8	2) 6	107.0	141.8	...	4,268	2) 3,220	...	...
Romania	...	1)	1)	...	...	...	22	46	...	...
United Kingdom: Engl. and Wales	18	18	18	98.8	101.4	...	28,224	24,192	...	...
Czechoslovakia	29	29	28	98.0	102.0	...	27,007	17,994	...	...
Yugoslavia	...	7	5	...	...	...	4,327	3,175	...	...
U. R. S. S.	12	10	3) 2	124.3	503.8	—	—	—	—	—
Canada	...	1	1	...	...	...	1,603	1,334	...	...
United States	35	31	30	111.1	117.1	44,400	23,310	36,426	190.5	121.9

1) Area under 500 acres. — 2) Average 1932 to 1935. — 4) Average 1934 and 1935.

Current information on tobacco.

Bulgaria: Weather conditions during the present agricultural season were very favourable for the growth of tobacco particularly for its quality which is reported as being very good. The frequent rains which fell at the beginning of October did not hinder the work of harvesting, which is now nearly finished. The yield as forecast this year is slightly higher that than of last year, due mainly to an increase in acreage.

France: Owing to drought, the crop is hardly average.

Greece: The production of tobacco is forecast this year as lower than last year as a result of tne restriction in acreage, imposed by the Government with the object of improving the quality of the tobacco. And, in fact, the quality this year is reported to be much better than last year.

Area and production of tobacco.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100				1936 = 100	Average = 100
	1,000 acres					1,000 pounds				
Albania	...	4	3	...	...	...	3,182	2,613	...	...
Germany 1)	32	32	29	101.4	111.8	...	72,501	66,015	...	...
Belgium	6	7	7	93.1	87.1	...	13,366	15,115	...	...
Bulgaria	101	92	69	109.2	146.3	69,055	66,838	53,785	103.3	128.4
Greece	226	273	187	82.6	120.6	147,435	178,506	94,883	82.6	155.4
Hungary	35	37	49	96.1	71.3	48,785	50,327	61,474	96.9	79.4
Italy	80	80	92	99.8	86.8	94,799	96,783	100,909	97.9	93.9
Poland	...	15	12	...	...	...	23,753	18,432	...	...
Romania	...	45	32	...	...	...	33,219	19,227	...	...
Switzerland	...	1	1	...	.	...	1,543	2,088	...	. .
Czechoslovakia	24	24	24	98.6	99.1	...	33,229	30,860	..	.
Yugoslavia	...	44	35	...	...	...	36,650	23,939	...	...
U S. S. R.	503	501	510	100.3	98.6	...	608,478	2) 354,728	...	...
Canada	70	55	49	127.4	143.5	56,000	46,084	48,701	121.5	115.0
United States	1,690	1,637	1,596	117.6	107.7	1,475,000	1,153,083	1,266,355	127.9	116.5
Japan	85	87	86	98.1	99.7	142,750	142,353	145,813	100.3	97.9
Palestine	...	...	4	...	...	...	...	1,546	. .	...
Syria and Lebanon	...	16	14	...	...	...	11,925	7,203	...	...
Turkey	...	148	124	...	...	..	99,208	77,690	. .	...
Algeria	53	55	54	96.0	97.8	. .	38,678	39,975	..	..

1) Production for sale. — 2) Average 1931 to 1934.

Hungary: By 5 October, the tobacco harvest was finished. The arrangement of the leaves for drying was in progress.

Italy: A good crop of tobacco is forecast.

Argentina: In September the transplanting of tobacco was carried out in good conditions, except in the district of Misiones where the work was hindered by drought.

Indo-China: In Annam, the sprouting of the seeds in the seed-beds was normal in Binh thuân. In Cochinchina, seeds have been planted on high lands for an early crop.

Palestine: Generally speaking, a good tobacco crop is now being picked. The second picking is already in progress. Production is expected to be much in excess of last year's, with a good quality leaf.

Turkey: To counteract the restrictions imposed on the cultivation of tobacco in Greece and Bulgaria, the cultivation in Turkey was extended in the present season.

Particularly the Izmir district profited from this extension of area which exceeded by 25 to 50 per cent the acreage of 1936, by means of very rapid planting and after the very favourable weather conditions of the previous season However, weather conditions during growth were not at all favourable, for strong winds and drought which occurred at times decreased chances of a satisfactory production, whose quantitative yield is estimated at 80-85 per cent of tobacco crops Leaf formation also is unsatisfactory in places It is estimated that the tobacco crop in the Aegean region will be 70 to 84 million pounds, while at the beginning of September it was estimated at 100 millions

Algeria Rather better yields than last year were forecast

Current information on other products.

Cacao.

Surinam In the second quarter of 1937 no considerable improvement was reported in the cacao crop The increase in prices was checked and at the same time interest in the crops has declined

Trinidad In August, weather conditions for the coming cacao crop were satisfactory, but it was reported that witch broom was spreading

Gold Coast and Togoland under British Mandate The crop situation in August and during the first half of September was as follows

Minor crop 1937 — Ashanti farmers were not selling freely and the residue of the minor crop was expected to be marketed with the early major crop In the Central Province there was a strong tendency for farmers to hold up the remainder of the minor crop, presumably with the object of marketing it with the early major crop Similar news was reported from northern Togoland In the Eastern Province the last picking of the minor was expected to merge with the early major, and similarly in the Western Province

Major crop 1937-38 — The preliminary estimate of the crop was as follows (in million lb) Ashanti 210 6, Western Province 24 6, Central Province 97 4; Eastern Province 225.7, Trans-Volta 43 7, Total 602 0

ASHANTI — Conditions for pod setting, growth and pod development were favourable The crop was ripening more quickly than expected in some districts There was considerable variation in the stage of development in the different areas It was expected that cacao would be marketed slowly in the near future as farmers were not selling freely and were unlikely to do so until they saw how prices were moving Harvesting, fermenting and drying were in progress although the weather was unsuitable for the latter operation. Prospects for the crop were good

During the first half of September very heavy rains delayed harvesting with the result that ripe and over-ripe pods might be seen on the trees in many districts Drying continued to be difficult owing to rain and lack of sunshine It was expected that the 1937-38 production would exceed that of 1936-37 by about 5 %

WESTERN PROVINCE. — Condition were favourable for growth and pod development but only moderate for drying, especially in the first half of September A normal crop was expected and marketing was in progress

CENTRAL PROVINCE — Conditions for pod-setting, growth and pod development were reported in August to have been poor in all district except Cape Coast. During the first half of September growth and drying progressed satisfactorily The crop was being harvested as it became ready, but the quantity marketed to mid-September was less than at the same date last year. A normal crop was anticipated.

EASTERN PROVINCE. — Conditions in August were moderate throughout the southern portion of the province and favourable in the Kwahn district where the rainfall for the month was much above the average During the first half of September, Nsawam-Kibi reports stated that a lack of rain in those areas was beginning to have an adverse effect and that therefore a great deal would depend upon the weather conditions during the next few weeks In the Koforidua, Kvobo and Kwahn districts, conditions were favourable for growth and pod-development Movement was generally normal except in the Koobo district where little cacao was ready for sale and the bulk of the crop was expected to be harvested in December and January Prospects were normal.

TRANS-VOLTA — Conditions for growth and pod development were moderate, rainfall having been below the average During the first half of September conditions improved in the North owing to an adequate rainfall It was reported that the bulk of the crop would be harvested during December and January Prospects were normal.

GENERAL — The preliminary estimate of cumulative percentage of crop expected to be ripe at the end of each month was as follows

	Aug	Sept	Oct	Nov	Dec	Jan	Febr
Ashanti	15	25	50	75	90	98	100
Western Province	10	15	30	50	75	95	100
Central Province	10	15	40	70	85	98	100
Eastern Province	15	25	45	65	90	98	100
Trans-Volta	5	10	25	45	70	90	100
Mean 1937-38	11	18	38	61	82	96	100
Mean 1936-37	15	25	45	75	90	98	100

An examination of the figures obtained from 16 Key Observation Plots shows that there is an increase of 10 per cent in the total number of pods on the trees at the end of August 1937 compared with the total at the same time of 1936 There are, this year, fewer pods in the "Ripe, Green and 4 ½" and over classes, whereas the three "Small" classes show a considerable increase This indicates that the season may be prolonged and that a smaller percentage of cacao will be available at the beginning of the season, with a larger percentage towards the end It is difficult, however, to estimate what percentage of these small pods will reach maturity as a number of things may interfere with their development

Movement. — Movement in August was as follows

	Aug. 1937 (million pounds)	Aug 1936 (million pounds)
Railway off-loadings, Takoradi	4.8	5.3
Exports:		
Takoradi	7.5	4.8
Accra	17.2	19.9
Other ports	7.8	12.0
All ports	*32.5*	*36.7*
Eastern Frontier	—	0.4
Total exports	*32.5*	*37.1*

Nigeria: It was reported in August that in the South the middle cacao crop had been disappointing.

Tea.

India: In North India weather conditions were generally seasonable during August, and immediate crop prospects were fair. Statistics to the end of August recorded on increase of 2,182,480 lb. as compared with the outturn to the same date last year.

In South India, crop prospects were satisfactory, and the outturn was 0.13 per cent. alread of that to the same date last year

Indo-China The crop picked was good in North Annam in August.

Japon: The crop condition of tea was quite good on 1 October 1937 and the weather was fair.

Nyasaland It was reported in August that recent rains had improved the breakaway of the tea bushes after pruning, and prospects for the next crop appeared good.

Coffee.

Brazil. The following table shows the stocks of privately owned coffee, lying in controlled warehouses on 30 June 1937, consisting of the 1935-36 and 1936-37 crops, in comparison with the corresponding figures of stocks on 31 March 1937 and 31 December 1936 These estimates were made by the « Departmente Nacional do Café ".

	30-VI-1937	31-III-1937	31-XII-1936
State of São Paulo	11,410	12,075	10,038
State of Minas Geraes	1,345	1,146	1,144
State of Espérito Santo	584	767	668
State of Rio de Janeiro	339	280	260
State of Paroná	11	22	20
In the railway stations and trucks of the State of São Paulo	1,531	3,168	3,080
In the railway stations trucks and warehouses of Rio	491	556	—
Total	*15,711*	*18,514*	*15,210*

The quantity of coffee available for export in Brasilian ports on 30 September 1937 was 4,226,000 centals, of which 2,773,000 were in the port of Santos The total quantity of coffee taken off the market since 1931 to the end of August 1937 is 68,097,000 centals, of which 2,293,000 centals were destroyed during August.

British Guiana: The wet weather of the last few months has made difficult the harvesting and drying of coffee. An average crop is expected for the present season.

Surinam: The rain that fell in April was followed by early blossoming, the main blossoming took place in May and June Despite the shedding of berries caused by the loss of blossoms which followed continuous rains, a good coffee crop is expected. Losses caused by cribisis have not been excessive.

The condition of coffee plantations in August was normal.

Indo-China: In Annam, berry formation was poor at Quang tri.

Philippines: The production of coffee beans in the 1936-37 season is officially estimated at 18,700 centals, which is slightly larger than in the previous season. The total cultivated area is estimated at 3,700 acres and the acreage harvested at 1,700.

French Equatorial Africa: In September the condition of coffee plantations was generally considered satisfactory

Kenya It was reported in August that coffee picking had begun, the quality of the first pickings was reported to be good

Madagascar At the beginning of September the condition of coffee plantations was still average

Uganda: It was reported in August that coffee picking had started, and yields above the average were exported

Sierra Leone: In July the weather was very wet, the condition of coffee plantations was average

Tanganyika It was reported in August that coffee picking had started in the Arusha-Moshi district

Hawaii The production of coffee beans in the 1936 37 season reached the figure of 98,250 centals, which is slightly larger than in the previous season

Groundnuts.

Argentina For the 1937-38 season an increase in the cultivated area of groundnuts is expected in comparison with last season

India Weather conditions at sowing time in August were generally favourable and the present condition and prospects of the crop are reported in the first forecast dated 21 August 1937, to have been generally good

(Telegram of 25 October) According to the second estimate, the area cultivated to groundnuts this year is 7,014,000 acres against 5,291,000 in 1936-37 and 4,326,000 on the average of the five years ending 1935-36, percentages 132.6 and 162.1

Indo-China: The harvest in North Annam was satisfactory, at the end of August vegetation was fairly good in South Annam and flowering had begun. The harvest at Tonkin was continued and was begun at Cambodia where it promised to be good

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details of the groundnut area

	1937 acres	1936 acres
Area harvested in August	37,800	37,800
Area harvested from 1 January to 31 August	357,100	344,700
Area of standing crop at the end of August	198,200	188,300

Egypt Maturation of groundnuts began in the early plantations and in most of the general ones Harvest was begun by the end of the month in some areas, and the formation of the pods and grains is progressing in the late plantations Crop condition is slightly above the average

Nigeria It was reported in August that in the north the groundnut season had ended and nearly all the season's groundnuts had been railed Up to 31 July total railings for the season amounted to 7,051,000 centals, and declared stocks in Kano at that date were about 157,000 centals.

Colza and sesame.

Austria At the beginning of October the sowing of winter colza was finished everywhere.

Bulgaria. According to the most recent estimate area cultivated to colza this year is about 14,900 acres against 6,600 in 1936 and 26,000 on the average of the five years ending 1935; percentages 224.5 and 57.2. The corresponding production is estimated at about 126,300 centals (252,600 bushels) against 51,900 (103,800) and 196,100 (392,100); percentages 243.5 and 64.4.

Production of sesame this year is about 22,300 centals (1,100 short tons) against 39,600 (2,000) in 1936 and 64,000 (3,200) on the average of the five years ending 1935, percentages 56.3 and 34.8.

Greece: According to the most recent estimate the area cultivated to sesame this year is about 94,700 acres against 102,200 in 1936 and 87,200 on the average of the five years ending 1935; percentages 92.6 and 108.5.

Hungary: By 5 October, the sowing of winter colza was finished in most of the country. The shoots have sprouted well and are growing vigorously.

Poland: According to the most recent estimate the area cultivated to colza this year is about 146,500 acres against 137,500 in 1936 and 98,700 on the average of the five years ending 1935, percentages 106.6 and 148.5.

Romania: At the end of the first ten days of October the sowing of colza was completed throughout the country. The area sown was larger than in the preceding year.

India: According to the first forecast dated 27 August 1937, the condition of the sesame crop appeared to be fairly good on the whole.

Indo-China: In Annam the crop obtained at Phu yên was good above all for the first sowings. In Tonkin the summer harvest, almost completed, yielded 4.9 centals per acre at Bât bat; at the end of August the preparation of the soil for autumn sowings was begun in the Tnyén quang district.

Palestine: The harvesting of the sesame crop is general and the yields are very much in excess of last year's crop.

Jute.

Indo-China: The harvest at Tonkin gave a yield of from 3,6 to 7,1 centals per acre. In Annam the harvest completed at the end of August was fairly good at Tanh Hoa and at Neghé on.

Current information on fodder crops.

Germany: The condition of fodder crops further improved in September compared with the previous month and the condition of the principal crops was considered above average.

According to the most recent estimate, the area and production of the chief fodder crops in 1937 compared with the corresponding statistics of 1936 and the average of the preceding five years, are as follows:

	1937	1936	Average 1931-35	% 1937: 1936 = 100	% 1937: Average = 100
		Area (thousand acres).			
Clover	3,630	3,816	4,138	95.1	87.7
Alfalfa	1,033	908	798	103.5	129.4
Mangels	2,114	2,085	2,034	101.4	103.9
Turnips	587	567	729	103.6	80.5
Fodder carrots	36	36	1) 40	103.6	92.7
Permanent meadows	13,857	13,940	13,640	99.4	101.6
of which:					
irrigated meadows	672	696	958	96.6	70.2
unirrigated meadows	13,185	13,244	12,682	99.5	104.0

1) Average 1934 and 1935.

		1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
			Production.			
Clover	(000 centals)	164,776	206,474	185,433	79.8	88.9
	(000 sh. tons)	8,239	10,324	9,272		
Alfalfa	(000 centals)	60,990	66,066	43,922	92.3	138.9
	(000 sh. tons)	3,049	3,303	2,196		
Mangels	(000 centals)	790,477	833,923	721,111	94.8	109.6
	(000 sh. tons)	39,523	41,696	36,055		
Turnips	(000 centals)	191,444	196,355	191,443	97.5	100.0
	(000 sh. tons)	9,572	9,818	9,572		
Fodder carrots	(000 centals)	8,638	9,004	10,325	95.9	83.7
	(000 sh. tons)	432	450	516		
Permanents meadows	(000 centals)	595,032	613,281	504,850	97.0	117.9
	(000 sh. tons)	29,751	30,664	25,242		
of which:						
irrigated meadows	(000 centals)	32,498	35,011	40,772	98.8	79.7
	(000 sh. tons)	1,625	1,751	2,038		
unirrigated meadows	(000 centals)	562,534	578,270	464,078	97.3	121.2
	(000 sh. tons)	28,126	28,913	23,204		

Austria: At the beginning of October the growth of mangels left much to be be desired owing to lack of sun. The cutting of the third crop of red clover and the

The condition of fodder crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 October 1937			1 September 1937			1 October 1936		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
CLOVER:									
Germany	2.7	—	—	2.9	—	—	2.4	—	—
Austria 1)	2.0	—	—	2.2	—	—	1.7	—	—
Netherlands	2) 66	—	—	—	—	2) 62	2) 71	—	—
ALFALFA:									
Germany	2.7	—	—	2.8	—	—	2.5	—	—
Austria	1.8	—	—	2.2	—	—	2.2	—	—
Netherlands 3)	2) 70	—	—	2) 68	—	—	2) 72	—	—
MANGELS:									
Germany	2.6	—	—	2.6	—	—	2.5	—	—
Austria	2.2	—	—	2.2	—	—	2.4	—	—
Switzerland	—	—	2) 64	—	—	2) 65	2) 72	—	—
TEMPORARY MEADOWS:									
Austria 4)	2.1	—	—	2.0	—	—	1.8	—	—
Norway	118	—	—	118	—	—	105	—	—
PERMANENT MEADOWS:									
Germany:									
irrigated meadows	2.5	—	—	2.6	—	—	2.3	—	—
other meadows	2.8	—	—	—	3.0	—	2.5	—	—
Austria	2.1	—	—	2.4	—	—	1.8	—	—
Sweden	107	—	—	107	—	—	—	100	—
PASTURES:									
Germany	2.9	—	—	—	3.0	—	2.6	—	—
Austria	2.3	—	—	2.7	—	—	2.3	—	—
Netherlands	2) 65	—	—	2) 59	—	—	2) 78	—	—

a) Above the average. — *b)* Average. — *c)* Below the average. — *d)* Excellent. — *e)* Good. — *f)* Average. *g)* Poor. — †) See explanation of the various systems on page 753. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Turnips. — 4) Kleegrass.

fourth crop of alfalfa was hindered by wet weather. As far as possible silos were used in cases where the preparation of hay was hampered. Clover in the fields is growing well. Also the drying and housing of the second crop of permanent meadows was hampered by rain. The growth of permanent meadows and pastures continued to be abundant at the beginning of October. Alpine pastures have not been grazed much, owing to wet weather.

The outturn of hay from the first and second cutting of permanent meadows is estimated at 79,212,000 centals (3,961,000 short tons) against 103,177,000 (5,159,000) in 1936.

Belgium: The second cutting of hay was not abundant, tossing was often difficult, but ensilage was carried out under good conditions. Pastures have sprouted again well. The growth of turnips was good.

Bulgaria. The area cultivated to mangels and vetches and black peas this year shows a considerable increase, particularly for mangels, compared with last year. The acreages under millet and alfalfa show, on the other hand, a reduction.

The production of these principal fodder crops in 1937 with comparative figures for 1936 and the average of 1931-35 are given here.

		1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
Vetches and black peas	(000 centals)	8,686	9,990	6,301	86.9	137.8
	(000 sh. tons)	434	499	315		
Alfalfa hay . . .	(000 centals)	3,406	4,054	3,399	84.0	100.2
	(000 sh. tons)	170	203	170		
Millet (feed) . .	(000 centals)	2,400	2,397	1,323	101.0	181.3
	(000 sh. tons)	122	120	66		
Mangels	(000 centals)	3,784	2,407	939	157.2	403.2
	(000 sh. tons)	189	120	47		

Denmark: We give below the acreages of the principal fodder crops sown in 1937, 1936 and the previous five-year average.

	1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
		(thousand acres)			
Mangels	355.1	384.0	384.6	92.5	92.3
Kohl-rabi	486.6	490.5	517.3	99.2	94.0
Turnips for feed	40.5	45.5	—	—	—
Permanent alfalfa	44.5	39.0	31.2	113.9	142.7
Clover and grasses for hay . .	687.5	655.1	662.1	104.9	103.8
Clover and grasses not for hay	994.9	1,076.2	1,077.4	92.4	92.3

France: The production of maize for feed was very mediocre. As a result of the drought of August and the beginning of September, the second cutting of rotation and permanent meadows was in most cases very poor and pastures also only yielded a very low production. For the season as a whole the production of rotation meadows was only passable but that of permanent meadows was large. The quality and food value of both were good. Consequently, no lack of fodder need be feared in the coming winter, although it was necessary, in many areas, to begin the distribution of dry fodder in September. At the beginning of October, the sprouting of grass was still slow.

Greece: The production of the main fodder crops was as follows:

		1937	1936	Average 1931 to 1935	% 1937 1936 = 100	% 1937 average = 100
Rotation meadow (dried hay)	(000 centals)	2,432	2,539	1,761	95.8	138.1
	(000 sh tons)	122	127	88		
Clover (dried)	(000 centals)	1,801	1,722	1,067	104.6	168.7
	(000 sh. tons)	90	86	53		
Permanent meadow (hay)	(000 centals)	3,160	3,571	2,316	88.5	136.4
	(000 sh. tons)	158	179	116		

Hungary. On 5 October the foliage of mangels was still green, and the roots were healthy and well developed A production rather larger than the average is forecast. The third, and in parts the fourth cutting of clover gave good yields, and the fourth and in parts the fifth cutting of alfalfa also gave good results. The production of clover seed was average in most of the country Maize for green fodder and mohar gave good results on the whole

The quantity and quality of the aftermath of permanent meadows was average After the rains, the grass on permanent meadows and pastures offered good feed for stock.

Irish Free State Weather during September was variable with a good deal of rain, which considerably benefited pastures At the end of the month they were in excellent condition, and there was ample feed for cattle

Italy The rain that fell during the first fortnight of September was favourable to the growth of fodder crops Feed for cattle is assured.

Norway The following table shows the acreage and production of the principal fodder crops in 1937, 1936 and the previous five-year average

Area (1000 acres).

	1937	1936	Average 1931 1935	% 1937 1936 = 100	% 1937 Average = 100
Rotation meadows	1,287	1,338	1,261	96.2	102.1
Permanent meadows	378	478	452	79.1	83.6
Turnips for feed	31	32	34	96.3	89.3
Kohl-rabi	15	14	11	106.7	131.2

Production

	1 000 bushels			1 000 short tons			% 1937	
	1937	1936	Aver 1931 35	1937	1936	Aver 1931 35	1936 = 100	Aver = 100
Rotation meadows	56,864	44,008	45,624	2,843	2,200	2,281	129.2	124.6
Permanent meadows	8,064	6,735	8,369	403	337	418	119.7	96.4
Turnips for feed	11,267	11,298	12,022	563	565	601	99.7	93.7
Kohl-rabi	5,337	4,523	3,690	267	226	185	118.0	144.6

Netherlands Fodder beets were in general still in good condition on mid-September, especially those on clay soils Kohl-rabi was also in satisfactory condition. Pastures too were satisfactory and had much improved compared with the previous month. It was possible to obtain a large quantity of grass for ensilage, but the yield was less on the higher soils than on the low-lying and peaty soils.

The condition of red clover, alfalfa and fodder carrots and grasses was generaly satisfactory.

Poland: At the middle of September the second cutting of hay was finished almost everywhere and the yield per acre was average. For clover on the other hand the outturn was poor, and in places it was impossible to cut the second crop owing to drought.

United Kingdom: The weather during September was generally fine and warm, with cooler showery spells in the middle of the month. Conditions were very favourable for field work. Pastures improved during the month and held out very well on the whole, but further rain was desirable in the middle and south of England. More second cuts of clover were taken than usual, the crops being in very good condition. Autumn cultivation was well advanced.

Turnips and swedes in England and Wales grew well during September where rain had fallen. The roots were generally on the small side. In some areas of Scotland also, turnips suffered from lack of rain. In Northern Ireland the crop was about average.

The yield per acre of turnips and swedes in Great Britain was 361 centals (18.1 short tons). Yields were much better in Scotland than in England and Wales. On the whole the yield was about average.

Mangels in England and Wales were generally healthy and vigorous and of fair quality, but rather small, whereas in Scotland they were large. The yield per acre of mangels in Great Britain was 475 centals (23.8 short tons), which is below the average of the last 10 years.

The area and production of the principal fodder crops are as follows:—

		1937	1936	Average 1931-1935	% 1937 1936 = 100	% 1937 Average = 100
		Area in thousand acres.				
England and Wales:—						
Turnips and swedes		425	449	555	94.6	76.6
Mangels		207	246	247	84.1	83.7
Scotland:—						
Turnips and swedes		332	346	354	96.0	93.9
		Production.				
England and Wales:—						
Turnips and swedes	(000 centals)	107,070	124,970	133,130	85.7	80.4
	(000 sh. tons)	5,354	6,248	6,657		
Mangels	(000 centals)	79,860	104,920	99,910	76.1	79.9
	(000 sh. tons)	3,993	5,246	4,995		
Scotland:—						
Turnips and swedes	(000 centals)	115,810	132,790	118,650	87.2	97.6
	(000 sh. tons)	5,790	6,639	5,933		

Argentina: In September the condition of rotation meadows was normal in the provinces of Buenos Aires, Santa Fé and Entre Rios. The rain that fell towards the end of September improved conditions in the province of Còrdoba and in the south of the Pampa. In the rest of the country the growth of alfalfa was retarded. The condition of pastures, except in the coastal region, was bad. Late rains caused a stimulation of growth, which promises a considerable improvement in pastures.

Canada · The area and production of turnips, fodder maize and alfalfa with comparative figures for 1936 and for the five-year average 1931-35 are given here:

Area (thousand acres)

	1937	1936	Average 1931 1935	% 1937 1936 = 100	% 1937 Aver = 100
Turnips	189	182	175	104.0	108.1
Fodder maize	417	409	411	102 1	101 3
Alfalfa	846	854	679	99 1	124.5

Production.

	Thousand centals			Thousand short tons			% 1937	
	1937	1936	Aver 1931 35	1937	1936	Aver 1931 35	1936 = 100	Aver = 100
Turnips	37,478	38,208	35,485	1,874	1,910	1,774	98.1	105.6
Fodder maize	77,620	62,568	67,028	3,881	3,128	3,351	124 1	115.8
Alfalfa	45,980	39,320	32,362	2,299	1,966	1,618	116 9	142.1

United States The production of hay from rotation meadows is now estimated at 1,492 million centals (74 6 million short tons)

Egypt The work is being carried out of the preparation of the land for the bersim crop, and cultivation was finised in some areas during September. Germination and growth are satisfactory.

LIVESTOCK AND DERIVATIVES

Livestock in Norway.

CLASSIFICATION	20 June 1937	20 June 1936	20 June 1935	20 June 1934	20 June 1933	20 June 1932	20 June 1931	20 June 1930
Horses	189,583	185,468	182,614	181,325	180,183	179,068	176,823	176,898
Cattle	1,343,245	1,348,446	1,328,239	1,294,497	1,339,833	1,341,787	1,309,656	1,250,672
of which milk cows	807,778	803 833	796 444	793,035	809 892	795,758	776,590	762,920
Sheep	1,739,029	1,748,600	1,736,687	1,697,698	1,764,050	1,735,932	1,692,406	1,588,186
Goats	321 655	331,350	334,015	337,697	343,042	342,525	344,352	333,141
Pigs	445 000	410,000	410,000	550,000	420,000	303,966	317,343	338,859
Poultry (adult)	3,481,373	3,471,933	3,436,544	3,512,716	3,543,658	3,503,001	3,323,991	3,098,184

Livestock in Poland.

The following table shows the number of livestock in Poland in the last 9 years:—

Year	Horses	Cattle	Sheep	Goats	Pigs
			(thousand)		
30 June 1937	3,883	10,547	3,183	403	7,672
30 » 1936	3,824	10,198	3,024	383	7,059
30 » 1935	3,760	9,759	2,802	355	6,723
30 » 1934	3,764	9,258	2,554	321	7,091
30 » 1933	3,773	8,985	2,557	278	5,753
30 » 1932	3,940	9,461	2,488	248	5,844
30 » 1937	4,124	9,786	2,599	237	7,321
30 » 1930	4,103	9,400	2,492	227	6,047
30 » 1929	4,047	9,057	2,523		4,829

The 1937 figures are provisional at present and may, after detailed calculation, be modified but they show a general tendency that is not likely to be affected.

This year the numbers of all classes of livestock reach their peak since 1929, with the exception of horses, whose number in 1937 was still below the maximum of 1931. The largest increase in pigs, being 8.7 per cent.; for the other classes the percentage increase was as follows: goats 5.3 per cent., sheep 5.2, cattle 3.4 and horses 1.5 per cent.

It may be noted that the increase between 1936 and 1937 is larger that that between 1935 and 1936 only in the case of pigs, for all other classes it is smaller.

Pigs in Czechoslovakia.

The following table gives the numbers of the various classes of pigs on 1 July 1937, according to provisional estimates, and comparative figures for the five previous years:—

YEARS	Total pigs	CATEGORIES					
		Boars for reproduction	Sows for reproduction (excluding those for fattening)		Other pigs not used for reproduction (including sows for fattening)		
			6 months old and under 1 year	1 year old and over	young pigs less than 8 weeks old	Pigs 8 weeks old and under 6 months	Pigs 6 months old and over
1937 (1 July)	3 862,694	13,352	181,825	381,122	977,056	1 859,848	449,491
1936 »	3,188 697	12,383	153,653	318,486	769 444	1,566,178	368,553
1935 »	2,980 193	12,110	157,758	259,664	700,959	1,453,203	356,479
1934 »	3,887 837	13 909	154,686	397,509	1,011,757	1,850,138	459,838
1933 »	3,314 123	13,949	183,700	339,581	845,625	1,574,623	356,645
1932 »	3,082,456	12,687	149,885	311,099	770,354	1,431,531	406 900

There was an increase in the total number of pigs in 1937 of 21 1 per cent. compared with 1936, and the figure practically reached the record of 1934. In view of this large increase, it is estimated that not only will the home demand for pork be covered by the national production, but that there will even perhaps be a surplus, if the Czechoslovakian demand does not increase in proportion.

Production of wool in New Zeland.

Wool production estimates for the 1936-37 season at 315,400,000 lb. are practically as high as the record production of last season, 316,500,000 lb. Wool production statistics are not obtained directly but are based on the figures of exports and local consumption for twelve months, and an the annual census of stocks taken on 30 June. Scoured and washed wool are converted to a greasy basis. Production for the last 5 years was as follows:—

Estimated wool production in New Zealand.

Year ended 30 June

1936-37	million lb.	315.4
1935-36	» »	316.5
1934-35	» »	275.9
1933-34	» »	300.5
1932-33	» »	288.4

Current information on livestock and derivatives.

Belgium: The condition of livestock is causing anxiety many cases of foot and mouth disease have been reported.

Milk production has suffered the usual seasonal decline.

France Despite the rain that fell in the second decade of September and the decline of the epidemic of foot and mouth disease, milk production remained poor at the beginning of October.

Greece· Conditions for feeding cattle in August and the first half of September were very good throughout the country, except in the islands (Samos, Chios, Lesbos and the Cyclades), where drought caused a scarcity of feed. The production of milk is forecast as lower than last year

Irish Free State. Pastures at the end of September provided ample feed for cattle

A reduction of about 6 per cent in milk production is reported as compared with the corresponding period last year

Latvia The production of milk during September was equal to that of August, but was 5 per cent larger than that of the corresponding month last year.

Netherlands In September feed for milch cows was quite good

Compared with the corresponding month of last year milk production for the whole country was about 5 per cent. lower. It was about average in North Holland while in other provinces the decrease was about 4 to 10 per cent.

United Kingdom· Milk yields in England and Wales were about average for the time of year, and in Scotland well up to the average at the end of September

In Northern Ireland at the end of August, cattle were improving in condition with favourable weather and plenty of feed. There were many complaints however of mastitis among dairy herds.

Argentina· The health of livestock was good except in the province of Corrientes.

French Morocco: The rains which fell in September have improved the condition of the herds on the high plateau of western Morocco and in the north-east regions, where pastures began to grow green again and the animals found sufficient nourishment and numerous drinking points In the other regions the situation remained precarious and the condition of the animals poor.

Tunisia: At the end of September, pastures were in excellent condition in the south (Sfax and Susa) and cattle also were in good condition Pastures were mediocre, on the other hand, in the far south.

Union of South Africa In the south-west of Cape Province conditions during August were extremely favourable, with heavy rains followed by warm weather, and both pastures and live-stock are in very good condition.

The south coastal area varied between districts, parts experiencing good rains and other parts drought

The Karroo areas were suffering from drought at the end of August, causing heavy losses to sheep farmers The wool clip is expected to be of good quality however

In the north-west and north-east of Cape Province and the Transkei the severe drought already in progress was intensified during August Stock, particularly sheep, were losing condition, and many farmers were trekking aimlessly about In the north-west the only refuge seemed to be South-West Africa

In Bechuanaland and Griqualand West the weather suddenly became mild, cattle were in good condition

In Natal also the weather became mild though remaining dry The drought was not yet serious but threatened to become so

Similar conditions prevailed in the Orange Free State and Natal If rain comes soon conditions for the coming season will be good Vermin have taken toll of flocks and herds in some parts of Transvaal Wool clip prospects were good

Current information on sericulture.

Bulgaria According to the most recent estimate, silk worms eggs in incubation this year will be about 30,900 ounces against 26,000 in 1936 and 26 300 on the average of the five years ending 1935, percentages 119 1 and 117 6 The corresponding production is estimated at about 3,616 000 pounds against 3 025,000 and 2,924,000, percentages 119 5 and 123 7

France According to the preliminary estimate, the quantity of silk-worm's seed this year is about 12,600 ounces against 13 100 in 1936 and 17 000 on the average of the five years ending 1935, percentages 96 5 and 74 3 The corresponding production is estimated at about 1 340 000 pounds against 1 486,000 and 2 010 000 percentages 90 2 and 66 6

Indo China In Tonkin low lying plantations suffered from floods and the large number of leaves which became useless as a result of this seemed likely to lead to a serious reduction in the breeding of silk worms In North Annam leaf-production was poor and breeding less intensive but more successful in central Annam (Quang nam and Binh dinh) the leaf harvest was on the other hand fairly abundant at Binh dinh the health of the worms was unsatisfactory as a result of the bad weather conditions At Cambodia breeding was checked at the end of August the mulberry plantations being almost all submerged

Japan Weather conditions were unfavourable for mulberries

According to the most recent estimate production of spring cocoons this year is about 376,198 000 pounds against 339 980,000 in 1936 and 399,551,000 on the average of the five years 1931-1935, percentages 110 7 and 94 2

The quantity of eggs hatched for summer and autumn cocoons this year is about 2,713,000 ounces against 2,843,000 in 1936 and 3 130 000 on the average of the five years 1931-1935 percentages 95 4 and 86 7

Syria and Lebanon Silk worm breeding has profited from very favourable conditions all-round and production of cocoons promises to be excellent and much greater than last year

According to the most recent estimate, the quantity of silk worm eggs incubated in 1937 is about 32,500 ounces against 32,300 in 1936 and 49,000 on the average of the five years ending 1935, percentages 100 5 and 66 2 The corresponding production of fresh cocoons is estimated at about 2,537,500 lb against 2,107 600 and 3,783,700, percentages 120 4 and 67 1

TRADE

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Wheat. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries.										
Bulgaria	174	609	0	0	4,625	683	0	0	—	—
Hungary	533	1,805	0	0	13,121	8,600	0	0	—	—
Lithuania	0	0	0	0	0	1,273	0	0	—	—
Poland-Dantzig	0	466	0	0	1,131	1,165	0	0	—	—
Rumania	...	...	...	...	22,528	3,520	1	1	—	—
Yogoslavia	929	1,139	0	0	10,781	368	0	0	—	—
U. S. S. R.	...	...	...	...	758	16,801	0	134	—	—
Canada	3,927	12,695	31	2	104,917	139,215	88	0	—	—
Argentina	2,258	2,249	—	—	93,598	39,414	—	—	—	—
Chile	...	...	..	...	1) 0	1) 1,312	1) 0	1) 0	—	—
Uruguay	..	...	...	..	1) 1 874	1) 1,509	1) 0	1) 24	—	—
India: by sea 4)	1,134	200	11	0	9,992	435	8	292	—	—
„ : by land 4)	...	...	...	...	2) 485	2) 495	2) 135	2) 140	—	—
Iraq	...	...	...	...	2,982	197	0	5	—	—
Iran	...	...	...	...	1) 538	1) 623	1) 0	1) 0	—	—
Manchukuo	...	...	—	—	1) 400	1) 531	—	—	—	—
Syria & Leb.: Fr m. t.	1	15	26	0	827	181	136	6	—	—
Turkey	...	...	—	—	2,814	317	—	—	—	—
Algeria	421	433	0	0	3,566	5,522	626	558	—	—
Egypt	...	...	...	..	366	3	0	1	—	—
French Morocco	...	...	...	...	3) 403	3) 2,309	3) 1,325	3) 0	—	—
Tunis	295	9	24	45	205	2,420	692	183	—	—
Australia	2 208	1,545	0	0	44,177	43,935	0	0	—	—
Importing Countries.										
Germany	0	41	3,687	144	42	1,299	18,610	2,138	—	—
Austria	1	1	105	414	10	10	5,293	3,241	—	—
Belgo-Luxemb E. U.	73	18	1,832	2,361	2,609	970	26,247	24,318	—	—
Denmark	7	0	269	266	406	35	4,027	5,150	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	10	28	20	0	84	83	153	84	—	—
Finland	0	0	95	193	0	0	1,530	1,618	—	—
France	157	597	545	718	1,132	8,627	8,599	16,110	—	—
Greece	...	..	...	...	0	0	12,887	8,823	—	—
Irish Free State	0	0	626	628	0	0	7,320	8,753	—	—
Italy	0	0	965	373	70	11	40,812	9,144	—	—
Latvia	0	0	176	0	0	926	596	0	—	—
Norway	0	0	253	238	0	0	3,847	3,383	—	—
Netherlands	0	0	1,127	737	55	4	11,398	11,365	—	—
Portugal	0	0	1	13	0	2,443	22	153	—	—
United Kingdom	118	224	9,619	8,381	1,810	846	110,684	114,401	—	—
Sweden	0	444	108	90	795	2,119	1,148	1,010	—	—
Switzerland	0	0	482	733	5	3	10,636	10,002	—	—
Czechoslovakia	356	1	24	0	5,211	4	192	1,302	—	—
United States	3,272	133	521	4,446	3,172	163	26,086	30,269	—	—
Brazil	—	—	...	...	—	—	1) 20,167	1) 18,699	—	—
Colombia	—	—	...	...	—	—	2) 280	2) 282	—	—
Peru	...	...	...	...	0	0	2,555	2,576	—	—
Burma 5)	0	—	15	—	0	—	32	—	—	—
Ceylon	—	—	10	12	—	—	118	100	—	—
China	...	...	...	...	775	160	1,060	3,734	—	—
Chosen	0	0	0	0	2	0	50	85	—	—
Taiwan	—	—	...	...	—	—	1) 7	1) 45	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 2	1) 1	—	—
Japan	—	—	...	...	—	—	2) 3,942	2) 7,683	—	—
British Malaya	...	...	...	...	2	2	7	15	—	—
Palestine: Br. m. t.	...	...	...	...	1) 1	1) 1	1) 1,094	1) 93	—	—
Union of South Afr.	...	...	...	...	584	0	13	25	—	—
New Zealand	...	...	...	...	2) 0	2) 0	2) 231	2) 170	—	—
Totals	**15,874**	**22,652**	**20,572**	**19,794**	**336,853**	**288,534**	**322,653**	**286,116**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 1937.

Wheat flour. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Germany	1	33	209	1	134	758	478	31	—	—
Bulgaria	6	0	0	0	86	0	0	0	—	—
Spain	—	—	—	—	—	—	—	—	—	—
France	166	192	69	112	2,845	3,199	847	1,222	—	—
Hungary	59	89	0	0	1,352	1,247	0	0	—	—
Italy	182	469	11	6	4,417	4,353	38	14	—	—
Latvia	0	0	0	0	0	0	0	0	—	—
Lithuania	0	0	0	0	0	0	0	0	—	—
Poland - Dantzig	0	142	0	0	1,449	2,163	0	0	—	—
Romania	...	...	...	...	7	2	0	0	—	—
Yugoslavia	16	11	0	0	123	74	0	0	—	—
U. S. S. R.	...	...	...	...	1,464	741	45	425	—	—
Canada	566	760	9	12	8,870	9,759	112	120	—	—
United States	741	599	1	6	7,628	6,732	71	88	—	—
Argentina	...	...	—	—	2,148	1,761	—	—	—	—
Chile	...	...	...	...	1) 0	1) 72	1) 93	1) 25	—	—
Uruguay	...	...	...	...	1) 121	1) 285	1) 0	1) 0	—	—
Chosen	2	4	0	0	52	113	0	0	—	—
India by sea 4)	110	28	0	6	855	399	21	11	—	—
Iraq	...	...	...	...	90	82	0	1	—	—
Iran	...	...	...	...	1) 0	1) 4	1) 0	1) 0	—	—
Japan	...	...	...	...	2) 1,663	2) 3,687	2) 414	2) 180	—	—
Algeria	42	73	4	4	554	843	80	89	—	—
French Morocco	...	...	...	...	3) 10	3) 4	3) 0	3) 0	—	—
Tunis	22	23	5	13	284	410	193	31	—	—
Australia	1,001	984	0	0	11,063	12,147	0	1	—	—
Importing Countries:										
Austria	4	2	14	43	49	9	512	757		
Belgo-Luxemb. E. U.	3	4	1	18	78	60	104	90	—	—
Denmark	2	3	12	11	25	22	161	217	—	—
Estonia	0	0	0	0	0	0	0	0	—	—
Finland	0	0	41	55	0	0	479	687	—	—
Greece	...	...	...	...	0	0	15	22	—	—
Irish Free State	0	0	8	8	0	0	140	159	—	—
Norway	0	0	2	54	1	4	902	884	—	—
Netherlands	61	0	92	139	433	7	1,422	1,207	—	—
Portugal	0	0	2	3	0	0	45	97	—	—
United Kingdom	89	215	757	758	2,042	2 653	9,494	9,528	—	—
Sweden	2	2	0	0	26	17	3	1	—	—
Czechoslovakia	167	0	0	0	348	6	9	24	—	—
Haiti	—	—	...	...	—	—	1) 225	1) 235	—	—
Brazil	—	—	...	...	—	—	1) 918	1) 1,049	—	—
Colombia	—	—	...	...	—	—	2) 9	2) 9	—	—
Peru	...	...	...	...	0	0	31	32	—	—
Burma 5)	0	—	63	—	1	—	,209	—	—	—
Ceylon	—	—	30	26	—	—	353	337	—	—
China	...	...	...	...	221	22	537	843	—	—
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	991	1,282	—	—
Outer Provinces	—	—	...	...	—	—	1) 602	1) 554	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 379	1) 361	—	—
British Malaya	...	...	...	...	142	127	1,494	1,341	—	—
Manchukuo	...	...	...	...	1) 7	1) 3	1) 3,096	1) 6 083	—	—
Palestine Br. m. t.	...	...	...	...	1) 0	1) 0	1) 682	1) 587	—	—
Syria & Leb.: Fr. m. t.	5	20	6	0	189	121	89	129	—	—
Egypt	...	...	...	...	30	0	54	73	—	—
Union of South Africa	...	...	...	...	5	2	10	13	—	—
New Zealand	...	...	...	...	2) 1	2) 1	2) 44	2) 200	—	—
Totals	**3,247**	**3,653**	**1,336**	**1,275**	**48,813**	**51,889**	**25,401**	**29,044**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 193

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX.*)	NET IM.**)
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Total Wheat and Flour †). — Thousand centals (1 centals = 100 lb.).										
Germany	—	—	3,965	60	—	131	19,027	—	—	—
Austria	—	—	118	467	—	—	5,754	4,228	—	—
Belgo-Luxem. E. U.	—	—	1,756	2,362	—	—	23,674	23,388	—	—
Bulgaria	182	609	—	—	4,740	683	—	—	—	—
Denmark	—	—	275	275	—	—	3,802	5,376	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	28	10	—	—	—	97	1	—	—
Finland	—	—	150	267	—	—	2,169	2,534	—	—
France	—	—	258	14	—	—	4,802	4,848	—	—
Greece	...	. .	...	...	—	—	12,906	8,852	—	—
Hungary	612	1,923	—	—	14,924	10,263	—	—	—	—
Irish Free State	636	638	—	—	—	—	7,509	8,965	—	—
Italy	—	243	737	—	—	—	34,903	3,346	—	—
Latvia	—	—	176	0	—	926	596	—	—	—
Lithuania	0	0	—	—	0	1,274	—	—	—	—
Norway	—	—	257	310	—	—	5,047	4,556	—	—
Netherlands	—	—	1,168	921	—	—	12,661	12,961	—	—
Poland-Dantzig	0	656	—	—	3,062	4,049	—	—	—	—
Portugal	—	—	4	18	—	2,161	81	—	—	—
Romania	..	..	.	...	22,527	3,519	—	—	—	—
United Kingdom	—	—	10,391	8,881	—	—	118,805	122,721	—	—
Sweden	—	356	105	—	—	1,131	323	—	—	—
Switzerland 4)	—	—	481	732	—	—	10,632	9,999	—	—
Czechoslovakia	554	0	—	—	5,470	—	—	1,322	—	—
Yugoslavia	951	1,155	—	—	10,950	466	—	—	—	—
Totals Europe	*2,935*	*5,608*	*19.851*	*14,307*	*61,673*	*24,603*	*262,788*	*213,097*	—	—
U. S. S. R.	...	. .	...	...	2,650	17 087	—	—	—	—
Canada	4,637	13,691	—	—	116,507	152,057	—	—	—	—
United States	3,739	—	—	3,523	—	—	12,839	21,247	—	—
Haiti	...	...	...	...	—	—	1) 299	1) 314	—	—
Argentina	2,258	2,249	—	—	96,325	41,762	—	—	—	—
Brazil	...	. .	...	. .	—	—	1) 21,391	1) 20,099	—	—
Chile	...	...	..	...	—	1) 1,374	1) 124	—	—	—
Colombia	...	...	...	..	—	—	2) 293	2) 294	—	—
Peru	...	. .	...	...	—	—	2,596	2,619	—	—
Uruguay	...	...	...	. .	1) 2,036	1) 1,865	—	—	—	—
Burma 5)	—	—	99	—	—	—	278	—	—	—
Ceylon	—	—	50	47	—	—	588	549	—	—
China	...	...	...	..	—	—	707	4,668	—	—
Chosen	2	6	—	—	21	65	—	—	—	—
Taiwan	—	—	...	...	—	—	1) 7	1) 45	—	—
India: by sea 6)	1,269	230	—	—	11,096	661	—	—	—	—
» : by land 6)	...	..	...	...	2) 350	2) 355	—	—	—	—
Netherlands Indies:										
Java and Madura	..	..	...	...	—	—	1,321	1,709	—	—
Outer Provinces	...	...	...	...	—	—	1) 803	1) 739	—	—
Indo-China	...	...	...	...	—	—	1) 506	1) 482	—	—
Iraq	...	...	...	...	1) 2,922	1) 251	—	—	—	—
Iran	...	..	. .	...	538	627	—	—	—	—
Japan	...	...	...	...	—	—	2) 2,278	2) 3,008	—	—
British Malaya	...	...	...	...	—	—	1,808	1,631	—	—
Manchukuo	...	. .	...	...	—	—	1) 3,719	1) 7,575	—	—
Palestine: Br m t.	...	...	...	...	—	—	1) 1,999	1) 874	—	—
Syria & Leb : Fr. m.t.	—	41	28	—	824	164	—	—	—	—
Turkey	...	...	—	—	2,814	317	—	—	—	—
Algeria	472	525	—	—	3,572	5,969	—	—	—	—
Egypt	...	...	...	...	334	—	—	104	—	—
French Morocco	...	...	...	...	—	3) 2,314	3) 909	—	—	—
Tunis	293	—	—	22	—	2,741	366	—	—	—
Union of South. Afr.	...	...	...	...	565	—	—	40	—	—
Australia	3,543	2,857	—	—	58,928	60,129	—	—	—	—
New Zealand	...	...	...	...	—	—	2) 288	2) 436	—	—
Totals	**19,148**	**25,207**	**20,028**	**17,899**	**361,155**	**312,341**	**315,907**	**279,529**	—	—

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*) Excess of exports over imports. — **) Excess of imports over exports.

†) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333.333 centals of grain.

1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) Wheat only. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	August				Twelve months (August 1-July 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:	**Rye.** — Thousand centals (1 cental = 100 lb.).									
Germany	0	0	319	6	1	821	3,232	691	—	—
Bulgaria	0	0	0	0	254	121	0	0	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	16	0	172	333	405	331	—	—
Hungary	157	161	0	0	2,816	210	0	0	—	—
Latvia	0	229	0	0	623	2,041	205	0	—	—
Lithuania	0	8	0	0	47	1,974	0	0	—	—
Poland-Dantzig . .	43	765	0	0	4,790	4,788	0	0	—	—
Romania	...	...	...	...	2,904	348	0	0	—	—
Sweden	0	4	0	6	4	903	166	19	—	—
Yugoslavia .	19	11	0	0	92	0	0	0	—	—
U. S. S. R.	...	...	...	...	1,552	2,288	0	0	—	—
Canada	112	302	2	0	2,034	1,375	3	0	—	—
Argentina	24	142	—	—	3,394	2,273	—	—	—	—
Algeria	7	10	0	0	26	27	0	0	—	—
Importing Countries										
Austria	2	1	293	281	17	19	3,852	1,004	—	—
Belgo-Luxemb. E. U.	0	6	20	329	39	28	1,126	3,680	—	—
Denmark	0	0	188	411	0	1	3,809	4,174	—	—
Finland	0	0	35	21	1	0	1,418	1,505	—	—
France	0	0	0	6	0	0	27	28	—	—
Greece	...	...	..	..	0	0	1	0	—	—
Italy	0	0	0	17	0	0	141	179	—	—
Norway	0	0	45	154	0	0	2,933	3,358	—	—
Netherlands . . .	62	15	81	177	2,028	76	1,237	1,747	—	—
United Kingdom . .	0	0	6	8	1	4	140	122	—	—
Switzerland	0	0	0	15	0	0	604	353	—	—
Czechoslovakia . .	0	0	1	1	3	4	15	18	—	—
United States . . .	578	0	0	633	303	4	2,045	1.221	—	—
Palestine: Br. m. t. .	—	—	...	...	—	—	1) 117	1) 81	—	—
French Morocco . .	...	...	...	..	2) 0	2) 0	2) 0	2) 0	—	—
Totals . . .	**1,004**	**1,654**	**1,006**	**2,065**	**21,101**	**17,638**	**21,476**	**18,511**	—	—

1) Up to 30 June. — 2) Up to 30 April.

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:	**Barley.** — Thousand centals (1 centals = 100 lb.).									
Bulgaria	151	18	0	0	606	43	0	0	—	—
Denmark	98	8	2	2	1,695	1,539	1,426	76	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	58	7	0	0	638	282	0	361	—	—
Latvia	0	0	2	0	0	244	0	0	—	—
Lithuania	0	0	0	0	0	328	18	0	—	—
Poland - Dantzig	19	543	0	0	6,342	7,728	0	0	—	—
Romania	...	...	..	...	13,755	4,066	0	0	—	—
Sweden	0	0	0	0	2	2	12	0	—	—
Czechoslovakia	0	62	0	0	1,163	806	2	2	—	—
Yugoslavia	23	0	0	0	192	2	1	25	—	—
U. S. S. R.	...	...	...	...	480	14,125	0	0	—	—
Canada	372	940	0	0	8,427	3,684	0	0	—	—
United States	1,007	773	165	689	2,332	4,738	8,145	337	—	—
Argentina	86	181	—	—	7,032	4,420	—	—	—	—
Chile	...	...	—	—	1) 1,491	1) 545	—	—	—	—
India. by sea 4)	62	0	10	1	637	41	37	119	—	—
Iran	...	...	...	...	6,969	3,312	0	0	—	—
Iraq	...	...	...	...	1) 484	1) 142	1) 0	1) 0	—	—
Manchukuo	...	...	—	—	1) 22	1) 24	—	—	—	—
Syria & Leb.: Fr m t	5	131	3	0	1,177	927	26	6	—	—
Turkey	...	...	—	—	1,472	389	—	—	—	—
Algeria	49	307	1	176	1,395	789	595	575	—	—
Egypt	...	...	...	...	622	1	3	14	—	—
French Morocco	...	...	...	...	3) 4,251	3) 1,914	3) 0	3) 0	—	—
Union of South Afr	...	...	...	...	0	1	0	0	—	—
Australia	12	81	0	0	1,254	1,240	0	0	—	—
Importing Countries:										
Germany	0	0	307	26	0	0	3,207	1,533	—	—
Austria	0	0	57	97	2	2	927	1,202	—	—
Belgo-Luxemb. E. U.	26	51	536	590	759	457	10,567	9,251	—	—
Estonia	0	0	0	3	0	0	56	33	—	—
Finland	0	0	0	0	0	0	34	82	—	—
France	0	0	117	659	6	0	5,801	5,064	—	—
Greece	...	...	...	...	0	0	178	153	—	—
Irish Free State	0	0	120	0	1	11	545	453	—	—
Italy	0	0	16	119	0	0	745	1,034	—	—
Norway	0	0	10	39	0	0	618	336	—	—
Netherlands	31	10	264	441	468	214	4,641	6,589	—	—
United Kingdom	0	6	1,803	1,604	113	8	19,926	22,254	—	—
Switzerland	0	0	102	81	0	0	2,983	2,547	—	—
Burma 5)	—	—	1	—	—	—	2	—	—	—
Ceylon	—	—	0	1	—	—	11	16	—	—
Chosen	11	0	0	0	13	1	13	6	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 0	1) 0	—	—
Japan	—	—	...	...	—	—	2) 299	2) 70	—	—
Palestine: Br m. t.	...	...	...	...	1) 24	1) 1	1) 639	1) 486	—	—
Tunis	212	0	2	227	206	1,666	842	130	—	—
New Zealand	...	...	...	...	2) 0	2) 0	2) 101	2) 229	—	—
Totals	**2,222**	**3,118**	**3,518**	**4,755**	**64,030**	**53,690**	**62,400**	**52,983**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 1937.

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Oats. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries										
Bulgaria	0	0	0	0	73	0	0	0	—	—
Hungary	0	14	0	0	169	107	0	0	—	—
Lithuania	0	0	0	0	0	518	47	0	—	—
Poland-Dantzig	0	113	0	0	1,476	2,595	0	0	—	—
Romania	...	...	...	...	670	386	0	0	—	—
Czechoslovakia	16	29	0	0	919	82	0	13	—	—
Yugoslavia	22	0	0	0	81	73	0	0	—	—
U S S R	...	...	...	...	139	3,282	5	8	—	—
Canada	104	128	208	0	2,285	4,074	3	116	—	—
United States	217	2	0	0	29	204	50	22	—	—
Argentina	111	67	—	—	8,436	3,092	—	—	—	—
Chile	...	...	...	.	1) 1,481	1) 625	1) 0	1) 0	—	—
Chosen	0	0	0	0	44	1	1	4	—	—
India by sea 4)	3	0	—	—	9	5	—	—	—	—
French Morocco	...	...	...	...	3) 172	3) 131	3) 0	3) 0	—	—
Tunis	69	1	0	0	55	215	7	0	—	—
Union of South Afr	...	...	...	...	90	7	0	0	—	—
Australia	4	6	0	0	121	97	13	2	—	—
New Zealand	...	...	...	..	2) 2	2) 1	2) 8	2) 19	—	—
Importing Countries										
Germany	0	0	150	0	1	1	1 118	463	—	—
Austria	0	0	50	76	1	1	848	616	—	—
Belgo Luxemb E. U	0	0	67	16	4	0	1,011	898	—	—
Denmark	6	0	8	3	189	440	1,480	142	—	—
Estonia	0	0	0	0	0	0	129	45	—	—
Finland	0	0	18	20	0	0	125	769	—	—
France	1	1	42	114	6	7	2,393	472	—	—
Greece	...	...	.	..	0	0	93	92	—	—
Irish Free State	0	0	0	0	0	0	0	0	—	—
Italy	0	0	40	56	1	4	589	3,383	—	—
Latvia	0	0	0	0	0	130	11	0	—	—
Norway	0	0	0	0	1	1	132	6	—	—
Netherlands	10	0	94	43	1,138	221	709	512	—	—
United Kingdom	2	3	87	332	36	41	2,085	2,865	—	—
Sweden	0	0	52	15	55	180	634	279	—	—
Switzerland	0	0	286	259	0	0	4,562	4,415	—	—
Uruguay	...	...	..	..	1) 0	1) 1	1) 10	1) 0	—	—
Ceylon	—	—	2	2	—	—	14	13	—	—
Indo-China	...	...	..	.	1) 0	1) 0	1) 0	1) 0	—	—
Japan	—	—	...	...	—	—	2) 51	2) 49	—	—
Syria and Lebanon: Fr. m. t.	2	0	0	0	5	1	1	2	—	—
Algeria	1	172	87	8	812	259	41	46	—	—
Egypt	—	—	...	...	—	—	1	2	—	—
Totals	**568**	**536**	**1,146**	**944**	**18,500**	**16,782**	**16,171**	**15,253**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	August				Ten months (November 1-August 31)				Twelve months (Nov. 1-Oct. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Bulgaria	130	288	0	0	2,463	1,699	0	0	1,896	0
Hungary	295	0	0	251	2,276	32	10	7,106	40	7,305
Romania	...	...	...	...	1) 15,294	1) 15,914	1) 0	1) 0	18,831	0
Yugoslavia	1,826	263	1	0	11,190	1,270	2	0	1,445	0
U. S. S. R.	...	...	...	...	1) 0	1) 12	1) 1	1) 0	12	0
Haiti	...	...	—	—	1) 2	1) 3	—	—	3	—
Santo Domingo	19	29	—	—	277	188	—	—	307	—
Argentina	17,286	16,295	—	—	182,897	126,212	—	—	172,111	—
Brazil	...	...	—	—	2) 35	2) 71	—	—	113	—
Chile	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	0
China	...	...	—	—	1) 292	1) 100	—	—	189	—
India by sea 4)	0	0	—	—	2	2	—	—	2	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 3,428	1) 2,150	—	—	2,485	—
Outer Provinces	...	...	—	—	2) 1,232	2) 415	—	—	765	—
Indo-China	...	...	—	—	1) 5,788	1) 6,395	—	—	10,542	—
Iraq	...	...	—	—	1) 6	1) 5	—	—	6	—
Manchukuo	...	...	—	—	2) 1,941	2) 1,408	—	—	1,716	—
Syria and Lebanon: Fr. m t.	0	20	0	0	4	78	1	2	78	2
Turkey	...	...	—	—	1) 4	1) 0	—	—	0	—
Egypt	...	...	...	...	1) 52	1) 1	1) 0	1) 8	2	9
Madagascar	...	...	...	...	1) 467	1) 208	1) 0	1) 0	356	—
French Morocco	...	...	...	...	4) 390	4) 533	4) 0	4) 0	1,391	0
Union of South Afr	...	...	...	...	1) 3,185	1) 1,446	1) 1	1) 4	1,446	5
Importing Countries:										
Germany	0	0	4,391	185	0	0	21,451	4,061	0	4,174
Austria	0	0	621	681	1	0	6,397	6,167	0	7,024
Belgo - Luxemburg Econ. Union	2	12	1,434	1,554	417	448	17,659	16,136	507	19,404
Denmark	0	0	643	491	0	0	13,066	3,330	0	4,521
Spain	—	—	—	—	—	—	—	—		
Estonia	0	0	11	0	0	0	252	0	0	0
Finland	0	0	60	159	0	0	1,296	1,817	0	2,031
France	0	0	769	1,056	14	2	12,397	11,653	3	15,328
Greece	...	...	...	...	1) 0	1) 0	1) 1,021	1) 1,407	0	1,519
Irish Free State	0	0	1,086	671	0	0	5,803	4,008	0	4,806
Italy	0	0	615	130	0	0	2,442	3,746	0	4,001
Latvia	0	0	0	0	0	0	118	0	0	0
Norway	0	0	110	257	0	0	2,750	2,271	0	2,759
Netherlands	0	0	1,304	1,504	1	2	17,966	16,672	2	19,688
Poland-Dantzig	0	0	16	0	0	0	168	0	0	0
Portugal	0	0	177	19	0	2	390	321	2	388
United Kingdom	244	162	5,632	6,402	2,144	1,133	68,124	63,633	1,479	79,085
Sweden	0	0	95	140	0	0	3,672	1,228	0	1,422
Switzerland	0	0	120	99	0	0	2,249	1,478	0	1,742
Czechoslovakia	0	0	194	307	18	0	1,255	2,054	0	2,345
Canada	1	6	1,414	214	218	51	10,221	2,231	62	4,723
United States	6	32	6,269	868	62	280	50,282	6,863	295	13,732
Peru	...	...	...	...	1) 0	1) 0	1) 3	1) 33	0	37
Chosen	0	0	40	0	19	1	257	440	3	599
Japan	—	—	...	...	—	—	3) 4,410	3) 3,708	—	6,456
Palestine: Brit. m. t.	...	...	...	...	2) 1	2) 36	2) 320	2) 79	40	154
Algeria	0	0	11	2	65	12	59	33	30	93
Tunis	0	0	0	34	0	5	209	34	5	142
Australia	0	0	0	0	0	0	4	21	1	21
New Zealand	...	...	...	...	3) 0	3) 0	3) 80	3) 48	0	57
Totals	**19,809**	**17,107**	**25,013**	**15,024**	**234,185**	**160,114**	**244,336**	**160,592**	**216,165**	**203,572**

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1) Up to 31 July. — 2) Up to 30 June. — 3) Up to 31 May. — 4) Up to 30 April. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Rice. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	August				Eight months (January 1-August 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	137	316	0	0	2,233	1,760	10	19	3,147	[illegible]
United States	248	6	178	105	815	110	1,489	630	235	1,151
Brazil	...	...	—	—	2) 314	2) 675	—	—	1,176	—
Burma 5)	5,613	—	2	—	33,355	—	14	—	—	—
Chosen	1	4	0	0	45	57	1	2	153	3
Taiwan	...	...	...	...	2) 1	2) 0	2) 0	2) 0	1	0
India: by sea 6)	345	2,217	2,858	141	14,186	22,018	14,713	2,971	29,931	3,236
» : by land 6)	...	...	...	...	3) 292	3) 246	3) 1,022	3) 852	513	[illegible]
Indo-China	...	...	...	...	2) 18,600	2) 23,198	2) 12	2) 22	37,558	69
Iran	...	...	...	...	1) 5	1) 6	1) 0	1) 0	13	1
Iraq	...	...	...	...	2) 773	2) 649	2) 0	2) 0	1,251	8
Siam	1,676	2,998	—	—	14,284	24 011	—	—	35,249	—
Egypt	...	...	...	...	1) 2,439	1) 1,426	1) 2	1) 1	3,070	[illegible]
Importing Countries										
Germany	65	64	424	539	339	345	2,720	2,624	561	3,805
Austria	0	0	61	49	0	0	464	378	0	604
Belgo-Luxemb. E. U.	54	17	159	73	427	88	1,238	630	220	1,216
Denmark	0	0	9	2	0	0	113	177	0	182
Estonia	—	—	2	4	—	—	15	14	—	22
Finland	—	—	21	22	—	—	222	179	—	313
France	16	33	963	1,271	597	222	12,017	10,845	376	18.870
Greece	...	...	..	..	1) 0	1) 0	1) 459	1) 355	0	665
Hungary	0	0	38	32	0	0	270	250	0	349
Irish Free State	0	0	6	3	0	0	51	53	0	83
Latvia	0	0	2	1	0	0	15	9	0	16
Lithuania	0	0	0	0	0	0	7	5	0	9
Norway	0	0	12	5	0	0	95	79	0	101
Netherlands	217	248	452	414	2,022	1,239	3,837	2,730	2,437	4,414
Poland-Dantzig	9	68	24	93	55	139	797	745	211	1,207
Portugal	0	0	17	60	0	0	50	243	0	455
Romania	—	—	...	...	—	—	2) 241	2) 216	—	654
United Kingdom	5	27	260	166	121	117	2,026	1,737	202	2,490
Sweden	—	—	11	0	—	—	245	184	—	234
Switzerland	0	0	18	23	0	0	253	276	0	521
Czechoslovakia	0	0	126	87	0	0	814	757	0	1,138
Yugoslavia	2	0	17	0	2	0	246	269	0	492
U S S R	...	...	...	...	1) 12	1) 12	1) 709	1) 626	21	1,159
Canada	5	3	12	32	30	15	633	690	28	783
Haiti	—	—	...	...	—	—	1) 21	1) 26	—	44
Chile	—	—	.	...	—	—	2) 173	2) 235	—	356
Colombia	—	—	...	...	—	—	3) 38	3) 133	—	267
Peru	..	...	...	..	1) 0	1) 0	1) 174	1) 584	0	737
Ceylon	0	0	1,081	942	1	2	8,458	8,177	2	11,926
China	...	...	...	...	1) 448	1) 386	1) 5,053	1) 6,328	592	6,842
Netherlands Indies:										
Java and Madura	...	...	..	...	1) 113	1) 68	1) 33	1) 158	263	190
Outer Provinces	...	...	...	...	2) 118	2) 82	2) 1,363	2) 2,533	246	4,915
Japan	...	...	...	...	3) 98	3) 67	3) 32	3) 158	234	1,221
British Malaya	...	...	...	...	1) 1,461	1) 2,291	1) 8,623	1) 9,197	4,091	16,150
Manchukuo	...	...	...	...	2) 20	2) 20	2) 1,093	2) 1,370	39	2,360
Palestine Br. m. t.	...	...	...	...	2) 84	2) 0	2) 281	2) 147	0	396
Syria & Leb.: Fr.m.t.	0	0	17	20	0	0	301	222	0	412
Turkey	—	—	..		—	—	1) 0	1) 5	—	7
Algeria	6	0	118	37	32	2	676	190	11	480
Madagascar	...	...	...	...	1) 50	1) 33	1) 15	1) 38	54	65
French Morocco	—	—	...	...	—	—	4) 235	4) 42	—	187
Tunis	0	0	34	7	0	0	302	31	0	114
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 847	1) 778	0	1,266
Australia	34	21	39	1	376	156	71	37	267	72
New Zealand	...	...	...	...	3) 1	3) 0	1) 44	1) 41	0	71
Totals	8,433	6,022	6,961	4,129	93,749	79,450	72,633	58,998	122,152	93,735

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1) Up to 31 July. — 2) Up to 30 June. — 3) Up to 31 May — 4) Up to 30 April. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Linseed. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	August				Eight months (January 1-August 31)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries										
Lithuania	0	17	0	0	109	219	0	0	525	0
Romania	...	...	...	...	2) 3	2) 2	2) 0	2) 0	39	0
Argentina	2,167	2,052	—	—	28,337	19,942	—	—	32,715	—
Uruguay	...	...	—	—	2) 661	2) 1,149	—	—	1,648	—
China	...	...	—	—	1) 260	1) 707	—	—	812	—
India: by sea 4)	545	496	0	0	2,971	4,273	0	0	6,959	0
" : by land 4)	—	—	...	...	—	—	3) 142	3) 170	—	308
Iraq	...	...	—	—	1) 14	1) 4	—	—	24	—
French Morocco	...	...	—	—	4) 36	4) 24	—	—	211	—
Tunis	0	0	0	0	1	0	1	0	0	0
New Zealand	...	...	...	...	3) 4	3) 1	3) 0	3) 0	9	0
Importing Countries										
Germany	0	0	464	82	0	0	2,835	3,405	0	4,824
Austria	0	0	1	1	0	2	6	7	2	13
Belgo-Luxemb. E. U.	2	3	102	252	59	91	1,651	1,604	124	2,419
Denmark	—	—	36	42	—	—	350	312	—	449
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	8	2	0	20	3	20
Finland	0	0	15	10	0	0	110	90	0	136
France	0	0	390	349	6	3	4,443	4,471	4	6,179
Greece	..	...	...	..	1) 0	1) 0	1) 64	1) 27	0	71
Hungary	0	0	0	0	1	0	19	4	0	4
Irish free State	0	0	6	9	0	0	67	79	0	120
Italy	0	0	187	89	0	0	1,177	696	0	1,194
Latvia	0	0	0	1	43	26	12	34	47	59
Norway	0	0	0	26	0	0	382	350	0	473
Netherlands	8	6	254	1,075	93	77	4,673	4,782	101	7,287
Poland-Dantzig	0	0	0	0	0	77	0	0	78	0
United Kingdom	0	0	384	427	0	1	4,368	4,227	1	6,088
Sweden	—	—	4	70	—	—	781	522	—	808
Czechoslovakia	0	0	76	16	0	0	455	342	0	536
Yugoslavia	0	0	22	0	0	0	147	60	0	95
Canada	0	25	173	2	3	30	468	467	101	726
United States	—	—	702	376	—	—	11,688	4,262	—	8,604
Burma 6)	0	—	0	—	0	—	0	—	—	—
Japan	...	...	...	...	3) 0	3) 0	3) 98	3) 110	0	284
Palestine: Br. m. t.	—	—	...	...	—	—	2) 14	2) 22	—	27
Algeria	0	0	0	0	0	2	29	1	3	2
Egypt	...	...	...	...	1) 7	1) 1	1) 0	1) 2	4	7
Australia	0	0	58	10	0	0	566	364	0	515
Totals	**2,722**	**2,599**	**2,874**	**2,837**	**32,616**	**26,633**	**34,546**	**26,430**	**43,410**	**41,248**

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1) Up to 31 July. — 2) Up to 30 June — 3) Up to 31 May. — 4) Up to 30 April. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 6) From 1st April 1937

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Cotton. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
United States	1,182	961	42	63	28,443	31,337	1,278	774	—	—
Haiti	...	...	—	—	121	126	—	—	—	—
Santo Domingo	...	...	—	—	2	0	—	—	—	—
Argentina	23	161	—	—	675	1,030	—	—	—	—
Brazil	...	...	—	—	1) 4,408	1) 2,825	—	—	—	—
Peru	...	...	—	—	1,751	1,884	—	—	—	—
Burma 4)	4	—	0	—	91	—	0	—	—	—
India: by sea 5)	646	678	110	75	17,249	14,800	1,979	1,275	—	—
» : by land 5)	...	...	—	—	2) 7	2) 5	—	—		
Netherlands Indies:									—	—
Java and Madura	...	...	—	—	28	18	—	—	—	—
Iraq	...	...	...	...	40	19	3	1	—	—
Iran	...	...	...	...	1) 371	1) 279	1) 0	1) 0		
Syria and Lebanon:									—	—
Fr. m. t.	0	2	0	0	81	79	0	0	—	—
Turkey	...	...	—	—	321	469	—	—	—	—
Egypt	...	...	—	—	8,738	8,100	—	—	—	—
French Morocco	...	...	...	...	3) 1	3) 0	3) 1	3) 1	—	—
Union of South Afr.	...	...	...	...	11	10	12	0		
Importing Countries:										
Germany	0	1	471	386	2	574	5,779	7,265	—	—
Austria	0	0	78	45	1	1	871	877	—	—
Belgo-Luxemb. E. U.	67	55	146	144	757	653	2,938	2,378	—	—
Bulgaria	0	0	20	11	0	0	193	180	—	—
Denmark	—	—	9	10	—	—	204	177	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	12	9	0	0	132	119	—	—
Finland	0	0	24	15	1	0	299	279	—	—
France	27	26	273	318	414	334	6,955	7,139	—	—
Greece	...	...	...	...	0	10	65	110	—	—
Hungary	0	0	29	40	0	0	552	560	—	—
Italy	0	0	272	631	0	0	3,598	1,909	—	—
Latvia	0	0	8	7	0	0	115	97	—	—
Lithuania	0	0	5	3	0	0	43	32	—	—
Norway	0	0	4	2	0	0	75	70	—	—
Netherlands	1	3	65	77	16	6	1,360	1,001	—	—
Poland - Dantzig	0	0	154	131	2	4	1,636	1,615	—	—
Portugal	—	—	25	22	—	—	555	484	—	—
Romania	...	...	...	...	1) 0	1) 0	1) 262	1) 131	—	—
United Kingdom	67	84	646	1,145	609	672	15,885	15,169	—	—
Sweden	—	—	33	39	—	—	754	672	—	—
Switzerland	2	0	31	34	5	1	715	549	—	—
Czechoslovakia	4	9	167	159	53	48	2,516	2,129	—	—
Yugoslavia	0	0	39	26	2	0	410	375	—	—
U. S. S. R.	...	...	...	...	508	0	443	512	—	—
Canada	—	—	61	71	—	—	1,681	1,357	—	—
Chile	—	—	...	...	—	—	3) 43	3) 19	—	—
Colombia	—	—	...	...	—	—	2) 58	2) 60	—	—
Ceylon	0	0	2	0	0	0	20	22	—	—
China	...	...	...	...	1,213	892	504	916	—	—
Chosen	0	0	1	1	0	0	31	21	—	—
Taiwan	—	—	...	...	—	—	1) 7	1) 6	—	—
Indo-China	...	...	...	...	1) 17	1) 9	1) 252	1) 107	—	—
Japan	...	...	...	...	2) 598	2) 455	2) 19,031	2) 14,659	—	—
Manchukuo	...	...	...	...	1) 3	1) 0	1) 673	1) 392	—	—
Palestine: Br. m. t.	...	...	...	...	1) 0	1) 0	1) 11	1) 15	—	—
Algeria	0	0	0	0	2	1	5	5	—	—
Australia	0	0	16	5	0	1	52	86	—	—
Totals	**2,023**	**1,980**	**2,743**	**3,469**	**66,541**	**64,642**	**71,996**	**63,545**	—	—

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1) Up to 30 June. — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	August				Ten months (Sept. 1-August 31)				Twelve months (Sept. 1-Aug. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
	Wool. — Thousand lb.									
Exporting Countries:										
Hungary	176	322	22	44	1,118	952	1,186	1,900	—	—
Irish Free State	1,426	1,819	97	53	16,535	16,103	853	569	—	—
Argentina a)	9,096	6,962	—	—	253,321	230,144	—	—	—	—
Argentina b)	2,621	3,924	—	—	44,586	48,976	—	—	—	—
Chile	...	...	...	...	2) 28,074	2) 18,047	2) 529	2) 1,276	—	—
Peru	...	...	—	—	1) 12,615	1) 11,674	—	—	—	—
Uruguay a)	...	...	...	...	2) 126,226	2) 85,842	2) 0	2) 0	—	—
Uruguay b)	...	...	...	...	2) 12,286	2) 9,425	2) 0	2) 0	—	—
Burma 5)	15	—	0	—	97	—	2	—	—	—
China	...	...	—	—	35 373	28,907	—	—	—	—
India: by sea 6)	2,465	2,818	419	313	69,018	55,923	6,799	6,784	—	—
» : by land 6)	—	—	...	...	—	—	3) 18,345	3) 12,337	—	—
Iraq	...	...	...	...	1) 16,354	1) 9,665	1) 99	1) 15	—	—
Iran	...	...	...	...	2) 12,053	2) 11,629	2) 0	2) 0	—	—
Manchukuo	...	...	...	...	2) 5,485	2) 3,821	2) 1,475	2) 1,171	—	—
Palestine: Br. m. t.	...	...	...	...	2) 417	2) 123	2) 24	2) 18	—	—
Syria & Leb.: Fr. m. t.	540	948	106	2	8,697	4,930	955	223	—	—
Algeria	4,275	1,248	139	176	28,947	14,793	3,303	2,079	—	—
Egypt	...	...	...	...	1) 5,260	1) 3,552	1) 60	1) 64	—	—
French Morocco	...	...	...	...	4) 5,864	4) 1,444	4) 31	4) 20	—	—
Tunis	822	49	291	42	8,625	1,107	1,091	518	—	—
Un. of S. Africa a)	...	...	...	...	1) 245,142	1) 211,356	1) 203	1) 97	—	—
Un. of S. Africa b)	...	...	...	...	1) 8,497	1) 5,988	1) 1,872	1) 2,015	—	—
Australia a)	82,72	6,997	487	234	775,794	732,907	3,730	9,222	—	—
Australia b)	46,80	4,491	9	2	67,865	64,627	104	157	—	—
New Zealand a)	55,20	2,242	...	...	236,936	262,902	3) 99	3) 90	—	—
New Zealand b)	51,48	5,650	...	...	52,880	52,812	3) 4	3) 13	—	—
Importing Countries:										
Germany a)	0	9	15,600	9,949	284	395	174,664	182,850	—	—
Germany b)	0	7	2,738	4,092	212	1,146	37,906	35,991	—	—
Austria	4	22	1,592	1,041	161	251	19,789	23,671	—	—
Belgo-Luxemb. Econ. Un. a)	5,437	3,214	16,819	7,987	98,053	68,859	276,778	220 794	—	—
Belgo-Luxemb. Econ. Un. b)	1,559	2,019	712	525	27,373	26,500	7,255	5,426	—	—
Bulgaria	0	0	75	152	0	0	1,468	1,612	—	—
Denmark	57	33	190	212	498	392	5,661	4,921	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	42	68	0	0	745	895	—	—
Finland	18	9	553	448	273	214	6,830	5,692	—	—
France	5,509	6,124	22,227	13,847	77,189	57,312	317,295	362,091	—	—
Greece	..	...	..	...	1) 2,145	1) 1,523	1) 7,154	1) 10,657	—	—
Italy a)	112	0	8,964	2,478	115	212	78,917	39,256	—	—
Italy b)	71	15	584	851	1,382	42	6,504	8,871	—	—
Latvia	0	0	157	130	0	0	1,834	2,006	—	—
Lithuania	13	0	88	79	20	0	906	891	—	—
Norway	214	73	168	196	1,779	1,111	2,833	2,820	—	—
Netherlands a)	375	397	304	381	5,280	3,499	5,959	6,975	—	—
Netherlands b)	49	75	511	370	977	1,235	6,909	5,110	—	—
Poland - Dantzig	95	0	2,482	4,209	287	168	50,027	44,406	—	—
Portugal	549	168	157	60	3,217	1,210	3,296	3,042	—	—
Romania	...	...	...	...	2) 981	2) 306	2) 1,486	2) 957	—	—
United Kingdom	14,352	20,369	37,384	33,391	300,240	321,201	841,794	879,321	—	—
Sweden	—	—	2,070	1,806	—	—	21,945	20,324	—	—
Switzerland	29	40	1,045	1,579	291	256	16,700	15,973	—	—
Czechoslovakia	86	71	1,541	2,765	551	1,074	41,967	43,222	—	—
Yugoslavia	117	302	950	1,100	1,334	4,958	8,303	9,509	—	—
U. S. S. R. a)	...	...	...	...	1) 0	1) 0	1) 47,633	1) 47,455	—	—
U. S. S. R. b)	...	...	...	...	1) 0	1) 0	1) 15,368	1) 12,055	—	—
Canada	558	1,087	1,612	659	7,774	8,543	26,048	22,520	—	—
United States	0	0	...	...	31	24	1) 355,717	1) 224,348	—	—
Japan	...	...	...	...	3) 271	3) 833	3) 215,223	3) 232,090	—	—
Totals	**74,260**	**71,504**	**120,135**	**89,241**	**2,608,783**	**2,388,913**	**2,645,678**	**2,514,319**	—	—

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a) = Wool, greasy. — b) Wool, scoured. — 1) Up to 31 July. — 2) Up to 30 June. — 3) Up to 31 May. — 4) Up to 30 April. — 5) From 1st April 1937 — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Butter. — Thousand lb.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	772	833	0	0	4,429	4,500	7	9	7,802	13
Bulgaria	4	9	0	0	18	18	0	0	73	0
Denmark	27,756	25,113	—	—	230,944	216,581	—	—	322,328	—
Estonia	3,102	2,714	0	0	18,076	14,489	0	0	24,152	0
Finland	1,669	2,288	0	0	23,292	20,657	0	0	30,836	0
Hungary	1,365	1,107	0	0	8,629	5,154	0	0	10,401	0
Irish Free State	5,957	8,697	0	0	31,151	40,074	1,459	9	58,032	11
Latvia	4,136	4,528	0	0	26,764	25,027	0	0	38,118	0
Lithuania	4,156	4,209	0	0	20,803	20,624	0	0	32,252	0
Norway	0	0	0	0	357	362	0	0	423	0
Netherlands	11,288	13,827	0	2	85,136	92,998	18	37	132,686	71
Poland-Dantzig	1,669	3,245	0	0	11,160	15,377	0	0	24,046	0
Romania	...	...	...	...	2) 53	2) 88	2) 0	2) 0	218	0
Sweden	4,702	3,922	0	0	34,460	26,941	2	412	42,126	414
Yugoslavia	22	57	—	—	185	181	—	—	269	—
U. S. S. R.	...	...	...	...	1) 16,561	1) 16,504	1) 24	1) 298	51,097	476
Argentina	95	1,076	—	—	13,931	14,489	—	—	22,642	—
Chile	...	...	...	...	2) 9	2) 15	2) 0	2) 0	31	0
Syria & Leb.: Fr. m. t.	9	7	11	4	183	392	130	119	750	161
Turkey	...	...	—	—	1) 4	1) 13	—	—	33	—
Union of South Afr.	...	...	...	...	1) 7,046	1) 7,591	1) 0	1) 0	9,273	0
Australia	4,262	6,127	0	0	104,790	118,847	0	4	185,672	4
New Zealand	22,721	12,633	—	—	224,253	197,473	—	—	313,168	—
Importing Countries:										
Germany	0	0	18,991	12,769	0	0	115,467	100,024	0	166,245
Belgo Luxemb. E. U.	2	4	115	84	26	44	3,003	7,253	68	8,139
Spain	—	—	—	—	—	—	—	—	—	—
France	670	1,947	150	165	4,691	8,095	1,027	3,752	12,679	4,251
Greece	—	—	...	...	—	—	1) 432	1) 492	—	780
Italy	123	49	71	101	913	701	4,742	414	1,113	864
Portugal	9	0	0	2	53	0	26	205	11	340
United Kingdom	567	774	88,518	82,601	7,974	6,471	733,886	736,593	9,237	1,095,624
Switzerland	0	0	13	20	4	2	5,035	1,506	7	3,223
Czechoslovakia	2	0	132	0	840	2	1,499	366	379	496
Canada	55	952	0	2	320	4,733	49	110	5,130	119
United States	53	82	181	1,182	578	597	9,925	6,171	825	9,872
Peru	...	...	...	...	1) 0	1) 18	1) 75	1) 234	26	467
Burma 5)	0	—	71	—	0	—	293	—	—	—
Ceylon	—	—	49	93	—	—	481	505	—	805
China	—	—	...	...	—	—	1) 717	1) 633	—	939
India: by sea 6)	55	24	55	68	265	150	602	639	218	944
» : by land 6)	—	—	...	...	—	—	3) 3,633	3) 3,115	—	5,022
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 4,903	1) 5,631	—	9,196
Outer Provinces	—	—	...	...	—	—	2) 1,528	2) 1,596	—	3,078
Indo-China	...	...	...	...	2) 2	2) 2	2) 414	2) 311	4	917
Iraq	...	...	...	...	1) 0	1) 0	1) 15	1) 4	2	13
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 7	2	11
Japan	...	...	...	...	3) 13	3) 586	3) 1,164	3) 7	688	13
British Malaya	...	...	...	...	1) 335	1) 348	1) 2,840	1) 2,601	631	4,105
Manchukuo	—	—	...	...	—	—	2) 130	2) 68	—	187
Palestine: Br. m. t.	—	—	...	...	—	—	2) 2,886	2) 2,806	—	5,494
Algeria	0	0	273	326	2	7	2,747	2,635	9	4,394
Egypt	...	...	...	...	1) 11	1) 37	1) 694	1) 734	42	1,316
French Morocco	—	—	...	...	—	—	4) 1,314	4) 1,501	—	4,017
Tunis	0	0	123	110	2	2	1,175	1,263	4	2,026
Totals	**95,221**	**94,224**	**108,753**	**97,529**	**878,290**	**860,190**	**902,342**	**882,064**	**1,337,503**	**1,334,[illegible]**

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1) Up to 31 July. — 2) Up to 30 June — 3) Up to 31 May. — 4) Up to 30 April. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cheese. — Thousand lb.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	425	827	137	152	6,442	5,417	1,429	1 356	8,620	1,878
Bulgaria	132	254	0	0	1,682	2,366	0	0	4,206	0
Denmark	1 618	1,764	0	2	13,484	14,548	15	13	21,008	22
Estonia	40	9	0	0	357	106	0	0	198	6
Finland	1,010	999	0	0	8,763	6,949	15	9	10,864	20
Italy	2,405	3,616	884	1,662	31,658	20,097	5,467	6,058	42,845	7,350
Latvia	33	7	0	0	146	57	0	0	119	0
Lithuania	154	2	0	0	507	456	2	0	972	2
Norway	346	337	24	18	2,694	2,189	203	134	2,381	269
Netherlands	12,719	11,625	55	57	89,545	80,436	487	551	125,311	869
Poland-Dantzig	62	44	20	11	1,138	110	146	150	441	223
Romania	...	...	...	...	2) 33	2) 26	2) 35	2) 20	128	55
Switzerland	3,060	2,509	190	238	23,735	28,263	2,332	1,973	40,737	3,505
Czechoslovakia	73	55	276	276	827	994	1,691	1,753	1,554	2,555
Yugoslavia	505	463	4	2	2,476	2,174	29	22	4,676	53
Canada	13,228	10,108	66	90	40,940	34,871	877	602	81,891	1,241
Australia	260	381	—	—	1,885	1,717	—	—	2,813	—
Turkey	...	...	—	—	1) 15	1) 55	—	—	90	—
Union of South Afr.	...	...	...	...	1) 1,576	1) 1,219	1) 159	1) 115	1,369	238
Australia	64	154	7	11	7,672	6,133	79	49	12,454	99
New Zealand	12,734	5,897	...	...	128,107	120,928	3) 2	3) 0	185,722	0
Importing Countries:										
Germany	2	11	8,761	6,221	130	192	49,496	41,277	262	61,507
Belgo-Luxemb E. U.	33	44	4,597	4,685	251	227	32,465	32,688	366	50,832
Spain	—	—	—	—	—	—	—	—	—	—
France	1,387	1,671	2,099	2,191	16,180	15,232	18,891	20,704	23,345	32,465
Greece	...	...	...	..	1) 527	1) 282	1) 549	1) 262	705	370
Hungary	276	82	0	0	690	494	0	0	767	2
Irish Free State	139	406	2	4	814	922	29	71	1,814	88
Portugal	7	9	7	24	95	86	128	181	121	346
United Kingdom	485	639	29,926	19,531	3,735	4,065	210,959	190,312	6,012	300,628
Sweden	—	—	146	196	—	—	1,290	2,026	—	3,530
U. S S R	...	...	...	...	1) 4	1) 24	1) 456	1) 476	90	756
United States	128	99	3,677	6,453	794	774	37,364	36,268	1,135	59,851
Chile	...	...	...	...	2) 9	2) 15	2) 33	2) 22	26	44
Peru	—	—	...	...	—	—	1) 467	1) 364	—	648
Burma 6)	0	—	11	—	0	—	40	—	—	—
Ceylon	—	—	22	26	—	—	134	117	—	220
India: by sea 7)	0	0	86	99	2	2	825	646	2	1,184
Netherlands Indies: Java and Madura	—	—	...	...	—	—	1) 1,047	1) 899	—	1,733
Indo-China	...	...	...	...	2) 0	2) 0	2) 340	2) 322	2	602
Iraq	...	....	...	...	1) 13	1) 7	1) 22	1) 24	7	62
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 2	0	2
Japan	—	—	...	...	—	—	5) 35	5) 40	—	168
British Malaya	...	...	...	...	1) 18	1) 9	1) 258	1) 176	18	337
Palestine: Br. m. t.	...	...	...	...	2) 15	2) 55	2) 1,155	2) 690	57	1,845
Syria & Leb.: Fr. m. t.	62	2	26	24	377	227	518	633	470	957
Algeria	2	2	831	628	37	55	7,410	7,150	88	11,025
Egypt	...	...	...	...	1) 33	1) 15	1) 3,951	1) 3,960	44	7,771
French Morocco	—	—	...	...	—	—	4) 1,294	4) 1,268	—	3,673
Tunis	2	4	282	201	37	93	1,761	1,755	104	2,915
Totals	**51,391**	**42,020**	**52,136**	**42,802**	**387,443**	**351,887**	**383,885**	**355,138**	**583,834**	**561,946**

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1) Up to 31 July. — 2) Up to 30 June. — 3) Up to 31 May. — 4) Up to 30 April. — 5) Up to 31 March. — 6) From 1st April 1937. — 7) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cacao. — Thousand lb.

COUNTRIES	AUGUST				ELEVEN MONTHS (October 1–August 31)				TWELVE MONTHS (Oct. 1–Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Grenada	...	...	—	—	1) 7,654	1) 8,104	—	—	8,228	—
Haiti	...	...	—	—	1) 2,842	1) 3,512	—	—	3,618	—
Santo Domingo	2,392	425	—	—	41,467	40,040	—	—	40,259	—
Brazil	...	...	—	—	2) 128,545	2) 166,494	—	—	279,988	—
Equador	...	...	—	—	2) 32,095	2) 37,007	—	—	45,096	—
Trinidad	...	...	—	—	1) 26,107	1) 26,107	—	—	27,805	—
Venezuela	...	...	—	—	4) 16,755	4) 16,852	—	—	29,198	—
Ceylon	633	373	—	—	8,475	5,624	—	—	6,102	—
Netherlands Indies: Java and Madura	...	...	—	—	1) 2,262	1) 2,813	—	—	3,995	—
Cameroon: Fr. m. t.	1,664	855	—	—	54,565	49,617	—	—	52,927	—
Ivory Coast	4,905	1,446	—	—	113,001	106,550	—	—	108,840	—
Gold Coast	32,243	36,676	—	—	643,670	607,695	—	—	639,440	—
Madagascar	...	...	—	—	1) 478	1) 747	—	—	829	—
Nigeria and Cameroon: Brit. m. t.	10,007	8,477	—	—	213,787	197,524	—	—	201,931	—
São Thomé and Principe Islands	1,409	734	—	—	17,630	30,062	—	—	31,780	—
Togo: Fr. m. t.	168	1,936	—	—	18,391	20,219	—	—	21,182	—
Importing Countries:										
Germany	201	0	11,755	12,017	2,906	7	145,144	157,311	7	172,395
Austria	—	—	747	836	—	—	12,516	11,857	—	13,038
Belgo Luxemb. E. U.	0	66	1,590	1,792	134	77	20,829	21,116	123	25,018
Bulgaria	—	—	55	22	—	—	1,239	1,506	—	1,559
Denmark	—	—	362	520	—	—	8,596	9,676	—	9,914
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	33	86	—	—	597	809	—	844
Finland	—	—	22	18	—	—	267	260	—	304
France	0	0	5,176	8,788	522	9	84,788	95,269	9	104,114
Greece	—	—	...	...	—	—	1) 2,762	1) 3,049	—	3,497
Hungary	—	—	461	721	—	—	7,377	9,059	—	9,961
Irish Free State	—	—	119	37	—	—	3,170	3,217	—	3,349
Italy	—	—	159	1,118	—	—	13,746	19,917	—	21,050
Latvia	—	—	68	77	—	—	1,036	1,102	—	1,199
Lithuania	—	—	86	42	—	—	847	994	—	1,047
Norway	—	—	423	481	—	—	7,035	4,716	—	5,514
Netherlands	309	370	5,589	9,099	6,010	4,581	121,319	140,849	5,181	152,545
Poland-Dantzig	—	—	882	1,248	—	—	13,290	12,996	—	14,035
Portugal	2	2	49	55	4	62	891	1,047	66	1,091
Romania	—	—	...	...	—	—	2) 3,146	2) 3,419	—	3,878
United Kingdom	326	348	1,656	3,832	6,702	7,238	227,033	271,097	8,494	276,108
Sweden	—	—	864	1,012	—	—	12,119	11,043	—	12,178
Switzerland	0	0	344	326	51	53	15,666	16,786	68	17,183
Czechoslovakia	—	—	500	1,354	—	—	25,371	25,232	—	27,055
Yugoslavia	—	—	260	112	—	—	2,293	1,823	—	1,845
U. S. S. R.	—	—	...	...	—	—	1) 15,309	1) 13,702	—	16,048
Canada	—	—	1,329	1,788	—	—	31,998	25,082	—	27,847
United States	—	—	61,897	40,609	—	—	658,871	529,052	—	580,159
Chile	—	—	...	...	—	—	2) 1,521	2) 1,532	—	1,784
Colombia	—	—	...	...	—	—	3) 4,872	3) 4,597	—	7,796
Peru	...	...	...	...	1) 9	1) 26	1) 143	1) 620	26	703
Uruguay	—	—	...	...	—	—	2) 505	2) 688	—	1 027
Iran	—	—	...	...	—	—	2) 9	2) 26	—	20
Japan	—	—	...	...	—	—	5) 2,665	5) 2,150	—	4,248
British Malaya	...	...	...	...	1) 139	1) 134	1) 141	1) 99	141	108
Palestine: Br. m. t.	—	—	...	...	—	—	2) 465	2) 562	—	785
Syria & Leb.: Fr. m. t.	—	—	0	0	—	—	7	13	—	13
Algeria	0	0	7	7	108	71	412	679	71	686
Egypt	—	—	...	...	—	—	1) 498	1) 470	—	496
French Morocco	—	—	...	...	—	—	4) 86	4) 62	—	95
Tunis	—	—	0	0	—	—	18	35	—	35
Union of South Africa	—	—	...	...	—	—	1) 2,044	1) 3,034	—	3,322
Australia	0	11	223	207	37	82	14,253	12,313	104	12,403
New Zealand	—	—	...	...	—	—	3) 2,727	3) 2,780	—	3,352
Totals	**54,259**	**51,719**	**94,656**	**86,204**	**1,344,346**	**1,331,257**	**1,467,621**	**1,421,646**	**1,515,508**	**1,539,[illegible]**

1) Up to 31 July. — 2) Up to 30 June. — 3) Up to 31 May. — 4) Up to 30 April. — 5) Up to 31 March.

Tea. — Thousand lb.

COUNTRIES	AUGUST				TWO MONTHS (July 1-August 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:										
Ceylon	13,503	16,023	0	0	33,506	35,078	0	0	202,290	0
China	...	...	...	...	1) 7,721	1) 8,431	1) 26	1) 31	91,904	917
Chosen	11	9	0	0	22	24	2	0	154	22
Taiwan	...	...	...	...	...	...	...	...	22,313	134
India: by sea 4)	40,005	40,234	606	384	74,073	71,088	888	600	299,691	4,021
» : by land 4)	...	...	...	...	...	...	...	...	2) 15,258	2) 1,764
Netherlands Indies:										
Java and Madura	...	...	...	...	1) 9,200	1) 9,698	1) 42	1) 64	116,709	661
Outer Provinces	...	...	—	—	...	...	—	—	28,479	—
Indo-China	...	...	...	...	...	...	...	...	3,364	1,493
Japan	...	...	...	...	...	..	..	...	2) 36,032	2) 1,012
Importing Countries										
Germany	44	0	860	725	75	0	1,728	1,488	150	10 809
Austria	—	—	44	53	—	—	79	97	—	794
Belgo-Luxemb. E.U.	0	0	44	57	0	2	88	123	2	668
Bulgaria	—	—	0	9	—	—	4	15	—	84
Denmark	—	—	20	73	—	—	88	174	—	1,252
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	4	9	—	—	13	13	—	99
Finland	—	—	18	20	—	—	35	33	—	293
France	0	0	194	187	2	2	489	401	15	3,280
Greece	—	—	...	...	—	—	1) 24	1) 214	—	395
Hungary	—	—	24	35	—	—	42	51	—	511
Irish Free State	172	0	1,770	1,605	375	2	3,704	3,201	342	22,869
Italy	—	—	29	4	—	—	46	9	—	225
Latvia	—	—	7	4	—	—	11	9	—	73
Lithuania	—	—	13	0	—	—	13	0	—	82
Norway	—	—	26	22	—	—	51	40	—	362
Netherlands	11	7	2,022	2,383	33	18	4,257	4,383	112	27,322
Poland-Danzig	0	0	269	227	0	0	538	390	2	4,081
Portugal	—	—	33	18	—	—	60	60	—	397
Romania	—	—	...	...	—	—	...	..	—	730
United Kingdom	4,641	5,600	49,829	46,751	11,755	12,031	78,319	77,795	70,804	439,361
Sweden	—	—	73	93	—	—	123	143	—	990
Switzerland	2	2	104	115	4	4	196	218	31	1,786
Czechoslovakia	—	—	97	108	—	—	146	148	—	1,226
Yugoslavia	—	—	1,021	906	—	—	2,088	1,640	—	401
U. S. S. R.	...	...	...	...	1) 4,246	1) 525	1) 1,120	1) 1,378	10,507	32,849
Canada	—	—	3,045	1,951	—	—	5,990	4,217	—	38,923
United States	—	—	6,486	6,312	—	—	13,530	12,308	—	92,273
Chile	—	—	...	...	—	—	..	..	—	5,988
Peru	—	—	...	...	—	—	1) 152	1) 97	—	1,191
Burma 5)	4	—	432	—	62	—	489	—	—	—
Iraq	...	...	...	...	1) 0	1) 0	1) 540	1) 487	9	7,015
Iran	...	...	...	...	...	...	...	...	0	19,520
British Malaya	...	...	...	...	1) 112	1) 130	1) 494	1) 624	1,168	5,251
Manchukuo	—	—	...	...	—	—	...	...	—	12,165
Palestine: Br m t.	...	...	...	...	...	...	...	...	0	721
Syria & Leb.: Fr. m. t.	0	0	22	9	0	0	33	22	0	474
Turkey	—	—	...	...	—	—	1) 64	1) 238	—	2,504
Algeria	0	0	333	392	0	0	765	1,025	4	3,693
Egypt	—	—	...	...	—	—	1) 1,232	1) 1,506	—	16,987
French Morocco	...	...	...	...	...	...	...	...	3) 348	3) 18,448
Tunis	—	—	600	300	—	—	1,027	567	—	3,411
Union of South Afr.	...	...	...	...	...	...	...	...	668	15,448
Australia	64	66	3,931	4,802	84	117	7,460	9,191	608	48,797
New Zealand	...	...	...	...	...	...	...	...	2) 139	2) 10,223
Totals	**58,457**	**61,941**	**71,956**	**67,554**	**141,270**	**137,150**	**125,996**	**123,000**	**901,103**	**863,995**

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1) Up to 31 July — 2) Up to 31 May. — 3) Up to 30 April. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 1937

COUNTRIES	AUGUST				TWO MONTHS (July 1-August 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
	Coffee. — Thousand lb.									
Exporting Countries:										
Costa Rica	...	...	—	—	...	...	—	—	56,170	—
Cuba	...	...	—	—	...	...	—	—	4) 8,620	—
Guadalupe	...	...	—	—	...	...	—	—	952	—
Guatemala	...	...	—	—	...	...	—	—	108,677	—
Haiti	...	...	—	—	1) 1,678	1) 2,943	—	—	56,412	—
Nicaragua	...	...	—	—	...	...	—	—	3) 23,788	—
Santo Domingo	428	1,263	—	—	1,658	2,430	—	—	27,238	—
Salvador	3,785	3,437	—	—	11,607	10,245	—	—	138,797	—
Brazil	107,542	149,659	—	—	203,192	290,226	—	—	1,753,477	—
Colombia	52.009	43,231	—	—	100,430	93,351	—	—	534,138	—
Dutch Guiana	320	723	—	—	542	1,995	—	—	7,000	—
Peru	...	...	...	...	1) 496	1) 639	1) 0	1) 0	7,152	7
Aden: by sea	...	...	—	—	1) 423	1) 708	—	—	9,162	—
India: by sea 5)	110	331	0	0	150	915	0	0	18,193	128
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 8,402	1) 2,967	—	—	75,855	—
Outer Provinces	...	...	—	—	...	...	—	—	152,426	—
Indo-China	...	...	...	...	.	...	...	..	937	157
Ivory Coast	...	...	—	—	. .	...	—	—	2) 13,552	—
Angola	...	...	—	—	.	. .	—	—	41,465	—
Kenya	1,116	1,733	—	—	2,028	3,545	—	—	39,143	—
Madagascar	5 379	3,609	—	—	5,924	7,203	—	—	61,139	—
Importing Countries.										
Germany	0	0	29,386	25,098	0	0	59,906	57,748	0	380,579
Austria	0	0	957	1,056	0	0	1,724	2,002	0	11,513
Belgo Luxemb. E. U.	1,448	137	6,532	9,352	1,667	249	14,892	19,443	3,538	113,898
Bulgaria	—	—	95	55	—	—	174	163	—	1,217
Denmark	—	—	2,222	3,752	—	—	5,406	9,372	—	62,673
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	22	11	—	—	49	57	—	223
Finland	—	—	3,865	4,773	—	—	7,632	8,468	—	47,803
France	2	4	32 618	34.780	4	7	72,819	66 412	37	413,258
Greece	—	—	..	..	—	—	1) 1,005	1) 1,334	—	14,163
Hungary	—	—	317	317	—	—	692	595	—	4,319
Irish Free State	0	0	55	22	0	0	108	97	0	547
Italy	2	0	4,863	4,848	2	2	11,557	8,519	7	81,183
Latvia	—	—	31	37	—	—	79	49	—	342
Lithuania	—	—	37	9	—	—	68	62	—	359
Norway	—	—	3,741	2,158	—	—	5,529	4,700	—	38,784
Netherlands	459	33	6,140	1,526	818	53	10,875	2,798	2,515	64,884
Poland-Dantzig	2	0	1,146	1,021	2	2	2,169	2,434	15	12,551
Portugal	207	132	849	933	410	509	1 587	2,820	2,231	14,581
Romania	—	—	...	...	—	—	..	..	—	7,368
United Kingdom	489	1,239	721	540	855	2,740	1,944	1,294	15,126	45,435
Sweden	—	—	8,042	7,948	—	—	16,345	16 405	—	105,547
Switzerland	0	0	2,008	2,101	2	0	3,990	5,410	4	34,300
Czechoslovakia	—	—	1,982	1,931	—	—	3,717	3,572	—	24,877
Yugoslavia	—	—	20	24	—	—	42	51	—	14,599
U S S. R	—	—	...	...	—	—	1) 0	1) 134	—	710
Canada	11	13	2,328	2,207	46	42	5,633	5.582	276	38,951
United States	419	631	96,801	119,293	754	1,281	210,928	238,226	11,213	1,760,838
Chile	—	—	...	...	—	—	...	.	—	7,242
Uruguay	—	—	...	. .	—	—	.	. .	—	4,747
Ceylon	0	0	487	282	0	0	688	655	2	3,243
Burma 6)	0	—	35	—	0	—	51	—	—	—
Iraq	...	...	...	...	1) 0	1) 0	1) 143	1) 90	0	1,918
Iran	...	...	...	...	..	...	..	..	0	187
Japan	—	—	...	...	—	—	...	.	—	2) 11,111
British Malaya	...	...	...	...	1) 712	1) 575	1) 2,033	1) 1,667	5,919	18,023
Manchukuo	—	—	...	...	—	—	...	.	—	529
Palestine: Br. m t.	...	...	...	...	...	...	.	..	0	3,206
Syria & Leb.: Fr.m.t.	0	0	154	99	0	0	370	271	0	2,566
Turkey	—	—	...	...	—	—	1) 930	1) 805	—	11,105
Algeria	0	0	3,115	2,934	0	0	6,634	5,465	4	30,688
Egypt	—	—	...	...	—	—	1) 1,133	1) 1,570	—	17,291
French Morocco	—	—	...	...	—	—	. .	.	—	3) 4,663
Tunis	0	0	174	163	0	0	441	428	0	3,104
Union of South Afr.	...	...	...	...	...	...	...	...	13	31,952
Australia	2	9	357	287	9	13	675	754	75	4,123
New Zealand	...	...	...	...	...	...	..	..	2) 0	2) 483
Totals	**173,730**	**206,180**	**209,100**	**227,557**	**341,811**	**422,639**	**451,968**	**469,452**	**3,175,268**	**3,451,975**

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1) Up to 31 July. — 2) Up to 31 May. — 3) Up to 30 April. — 4) Up to 31 March. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries — 6) From 1st April 1937.

STOCKS

Stocks of cereals in farmers' hands in the United States on 1st October.

PRODUCTS	Percentage of total production			Stocks in 1,000 centals		
	1937	1936	1935	1937	1936	1935
Wheat	37 5	36.2	43 0	200,248	136,259	160,783
Oats	80.3	87.1	81.3	291,928	218,455	311,279
Maize (old crop) 1)	4.8	8 7	5.4	34,026	97,311	34,527

1) Data based on maize for grain

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	October 1937	September 1937	August 1937	October 1936	October 1935
	1,000 centals				
WHEAT					
Canadian in Canada	43,634	28,330	17,504	86,220	134,524
U. S. in Canada	1,046	869	74	0	0
U. S. in the United States	84,898	82,759	53,600	49,709	47,822
Canadian in the United States	868	1,528	2,467	11,406	12,360
Of other origin in the United States	0	0	0	0	22
Total	*130,446*	*113,486*	*73,645*	*147,335*	*194,728*
RYE					
Canadian in Canada	732	594	122	1,408	2,178
U S in Canada	595	504	83	0	0
U. S. in the United States	3,289	2,998	665	3,648	4,708
Canadian in the United States	0	0	0	295	0
Of other origin in the United States	0	0	0	58	1,243
Total	*4,616*	*4,096*	*870*	*5,409*	*8,129*
BARLEY:					
Canadian in Canada	6,090	3,915	1,346	6,882	4,062
U. S in Canada	81	153	0	0	0
U. S. in the United States	6,467	5,584	2,509	8,511	6,681
Canadian in the United States	147	123	231	583	60
Of other origin in the United States	0	0	0	0	109
Total	*12,785*	*9,775*	*4,086*	*15,976*	*10,912*
OATS:					
Canadian in Canada	1,961	967	983	5,393	3,789
U. S. in Canada	105	135	0	34	0
U. S. in the United States	9,150	7,101	1,075	16,311	13,189
Canadian in the United States	0	0	0	2	0
Of other origin in the United States	0	0	0	0	0
Total	*11,216*	*8,203*	*2,058*	*21,740*	*16,978*
MAIZE:					
U. S. in Canada	1	1	1	6	2
Of other foreign origin in Canada	2,102	2,395	2,290	280	1,257
U. S. in the United States	3,165	3,015	4,158	2,422	1,916
Of other origin in the United States	276	0	1,337	137	255
Total	*5,544*	*5,411*	*7,786*	*2,845*	*3,430*

Quantities of cereals on ocean passage with first destination Europe.

Products	October 1937	September 1937	August 1937	October 1936	October 1935
	Saturday nearest 1st of month				
	1,000 centals				
Wheat (and flour in terms of grain)	13,032	12,029	15,336	17,362	14,309
Rye	490	389	58	283	312
Barley	2,880	2,796	1,292	2,848	3,936
Oats	301	410	611	333	755
Maize	25,752	20,736	17,861	19,445	15,883

AUTHORITY: *Broomhall's Corn Trade News.*

Cereals in commercial elevators and mills in Germany 1).

Products	September 1937	August 1937	July 1937	September 1936	September 1935
	Last day of month				
	1,000 centals				
WHEAT:					
Grain	22,591	17,628	9,513	16,753	31,112
Flour for bread	1,759	1,371	968	1,775	2,538
TOTAL 2)	*25,033*	*19,533*	*10,857*	*19,218*	*34,637*
RYE:					
Grain	21,854	18,208	10,805	15,258	28,027
Flour for bread	1,561	1,360	1,098	1,184	1,616
TOTAL 2)	*24,149*	*20,208*	*12,420*	*17,000*	*30,404*
BARLEY	6,389	5,322	2,601	3,547	5,245
OATS	3 437	2,687	1,814	3,298	3,887

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries). — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour at the ports of Great Britain and Ireland 1).

Products	October 1937	September 1937	August 1937	October 1936	October 1935
	First day of month				
	1,000 centals				
WHEAT:					
Grain	5,136	6,000	6,288	2,856	3,024
Flour as grain	720	720	912	816	528
TOTAL	*5,856*	*6,720*	*7,200*	*3,672*	*3,552*
BARLEY	1,040	840	760	1,200	1,040
OATS	160	160	224	160	256
MAIZE	2,448	2,544	2,256	2,712	2,736

1) Imported cereals.
AUTHORITY: *Broomhall's Corn Trade News.*

Commercial cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	October 1937	September 1937	August 1937	October 1936	October 1935
	Saturday nearest 1st of month 2)				
	1,000 centals				
WHEAT					
Antwerp	1,251	1,222	1,528	951	1 546
Rotterdam	401	585	1,127	862	512
Amsterdam	4	7	10	17	12
RYE					
Antwerp	20	12	13	82	27
Rotterdam	46	22	18	20	61
Amsterdam	0	0	0	0	0
BARLEY					
Antwerp	84	137	81	230	316
Rotterdam	77	17	11	0	18
Amsterdam	1	0	0	0	1
OATS					
Antwerp	10	29	98	22	15
Rotterdam	0	0	4	0	3
Amsterdam	20	12	15	27	27
MAIZE					
Antwerp	0	9	8	0	158
Rotterdam	44	17	44	7	220
Amsterdam	16	46	69	2	4

1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES *Nederlandsche Silo Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam

Cotton stocks on hand in the United States.

LOCATION	September 1937	August 1937	July 1937	September 1936	September 1935
	Last day of month				
	1,000 centals				
In consuming establishments	4 836	4,689	6,295	4 142	3 498
In public storage and at compresses	33 837	17,116	13,713	33 244	34 919
TOTAL	*38 673*	*21,805*	*20,008*	*37,386*	*38 417*

Cotton stocks at Bombay and Alexandria.

LOCATION	October 1937	September 1937	August 1937	October 1936	October 1935
	Thursday nearest 1st of month				
	1,000 centals				
Bombay 1)	2 600	2,660	3,240	2 776	1 804
Alexandria 2)	897	348	460	1,295	773

1) Stocks held by exporters, dealers and millers — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES *East Indian Cotton Assn* and *Commission de la Bourse de Minet el-Bassal.*

Cotton stocks according to varieties, at Alexandria on 31st August.

Description	1937	1936	1935	1934
	1,000 centals			
Sakellaridis	55	109	166	273
Ashmuni Zagora	150	168	160	535
Maarad	8	47	16	38
Giza 7	22	36	34	29
Other varieties	113	124	62	89
Total	*348*	*484*	*438*	*964*

Authority *Commission de la Bourse de Minet-el-Bassal*

Cotton stocks in Europe.

Location Description	October 1937	September 1937	August 1937	October 1936	October 1935
	Thursday or Friday nearest 1st of month				
	1,000 centals				
Great Britain					
American	1 033	1,122	1,375	1 121	643
Argentine, Brazilian	643	609	646	971	184
Peruvian	387	292	278	283	330
East Indian	289	341	403	308	148
Egyptian Sudanese	509	584	747	787	848
W Indian, W and E African, and other	319	314	332	148	89
Total	*3 180*	*3 262*	*3,781*	*3 618*	*2,242*
Bremen					
American	355	287	495	363	437
Other	189	242	258	239	320
Total	*544*	*529*	*753*	*602*	*757*
Le Havre					
American	461	445	540	393	236
French colonial	33	34	27	27	20
Other	134	132	142	166	85
Total	*628*	*611*	*709*	*586*	*341*
Total (Continent 1)					
American	845	773	1,164	897	955
Argentine, Brazilian, Peruvian	186	243	168	331	284
East Indian	89	96	97	192	164
Egyptian	63	55	70	93	110
W Indian, W and E African, and other	119	135	166	139	131
Total	*1,302*	*1,302*	*1,665*	*1 652*	*1,644*

1) Including Bremen and Le Havre

Authorities *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*

PRICES

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated The monthly averages are based on the weekly quotations, and the yearly averages on the monthly)

DESCRIPTION	15 Oct 1937	8 Oct 1937	1 Oct 1937	24 Sept. 1937	AVERAGE				
					Sept 1937	Oct 1936	Oct 1935	Commercial Season 1)	
								1936-37	1935-36
Wheat.									
Budapest (*a*) Tisza wheat, 78 kg p hl (pengo p quintal)	20 95	20,52	20 65	20 77	20 60	17 64	17 86	19 04	16.78
Braila Good quality (lei p quintal)	535	530	530	535	515	7) 470	417	* 486	* 442
Winnipeg No 1 Manitoba (cents p 60 lb)	142 1/8	134 3/8	140 5/8	135 7/8	132 7/8	110 3/4	91 5/8	122 1/2	85
Chicago No 2 Hard Winter (cents p 60 lb)	108 1/4	108	116 5/8	n 112 1/2	112 1/8	120 5/8	122 3/4	130	109 3/4
Minneapolis (cents p 60 lb)									
No 1 Northern	114 1/2	112 3/4	121	119 3/8	120	137 3/4	128 1/2	141	119 1/8
No 2 Amber Durum		102	106 1/2	103 3/8	8) 115 1/2	142 3/8	111 1/4	138 1/8	111 7/8
New York No 2 Hard Winter (cents p 60 lb)	123 1/4	123	131 3/8	128 1/2	127 5/8	131 7/8	138 1/2	142 3/8	124 1/4
Buenos Aires (*a*) Barletta, 80 kg p hectol (paper pesos p quintal) 2)	16 90	15 80	15 10	14 50	14 55	11 37	9 01	12 28	9.53
Karachi White Karachi, 2% barley, 1½% impurities (rupees p 656 lb)	30- 4-0	29-14-0	31-8-0	31-4-0	31-1-3	30-4-2	25-13-0	31-4-11	24-7-6
Berlin Home grown (free at Brandenburg stations, Rm p quintal) 3)	20 10	20 10	20 10	20 10	20 10	19 80	19 80	20 52	20 53
Hamburg (c i f , Rm p quintal)									
No 1 Manitoba	15 53	15 12	15 57	8) 14 77	14 40	11 94	10 19	13 32	9 51
Barusso, 80 kg p hl	11 99	11 98	13 64	13 40	13 35	10 70	8 46	11 90	8 74
Antwerp (francs p quintal)									
Home grown	140 00	141 00	136 00	135 00	132 00	122 20	92 25	135 40	100 90
No 1 Manitoba (Atlantic) (in bond)	182 00	182 00	184 00	173 00	164 75	139 70	117 00	154 50	110 80
Barusso (in bond) 4)	161 00	163 00	164 00	159 00	157 25	128 70	101 75	141 05	103 10
Paris Home grown (delivery regional depots 76 kg p hl , frs p quintal) 5)	182 00	182 00	182 00	181 00	181 00	145 00	82 85	149 35	91 40
London (Mark Lane) Home grown (sh p 504 lb on the farm)	7) 42/6	7) 43/-	7) 42 6	7) 41 6	7) 39 9	39 1 1/4	27 9 3/4	40 1 3/4	27/5 1/4
Liverpool and London (c i f , parcels shipping current month, sh p 480 lb)									
Danubian (on sample)	38 3	38 9	39/	38 9	38 1 1/2	36 4	25/5 1/2	* 38/1 1/4	* 25/5
Russian (on sample)	43/3	44 -	45/-	43 9	42 5 1/4	n q	30/5 1/2	n q	* 29 -
No 1 Northern Manitoba (Atlantic)	10)54/2 1/4	53/1 1/2	55 -	9) 52/9	9) 50 7 1/2	41 6 1/4	34 11 1/2	* 46/0 1/4	32/9
No 1 Northern Manitoba (Pacific)	n q	n q.	n q	n q	n q.	41 7 1/2	34 10 1/4	* 45/9 3/4	32/5 1/4
No. 3 Northern Manitoba (Pacific)	10) 11) 45/5 1/4	11)46 4 1/2	11)49 3	9) 11) 48 4 1/2	9) 11) 46/10 1/2	40 0 1/2	32 4 1/4	44/1	30/5 1/4
No. 2 Hard Winter (Gulf)	43/9	44 3	46 9	9) 46/1 1/2	44/1 1/2	n q	n. q	n q	n q
Rosafé, 63½ lb. p bush (afloat)	12)40 9	12)39 9	12)42/-	13)40 6	12)40/5 1/2	12)35 6 1/4	* 30 9	* 39 3 3/4	* 28/9
White Karachi, choice	43 3	44 -	45 -	43/6	42 11 1/4	40 3	n q	42 5 3/4	* 31/7 1/2
West Australian (cargoes)	45 -	46 -	46 6	13)45 4 1/2	13)44 2 1/2	41 5 1/2	10)32 7 1/2	43 2 1/2	* 30/2 1/2
New South Wales (cargoes)	45 -	46/-	46/6	13)45 4 1/2	13)44 2 1/2	40/7 3/4	(10)30 11	43 0 1/2	* 29/9
Milan (*b*) Home grown, soft, "Buono mercantile" 78 kg p hl (lire p q) 6)	138 00	138 00	138 00	138 00	138 00	123 00	110 25	125 30	114 20
Rye.									
Berlin Home grown (free at Brandenburg stations, Rm p quintal) 3)	18 60	18 60	18 60	18.40	18 40	16 10	16 10	16.82	16.68
Hamburg. Plata, 72 73 kg p hl (c i f , Rm p quintal)	10 82	10 87	10 98	n q	n. q.	7 55	5 28	10 30	5.27
Budapest Pest rye (pengo p quintal)	18 95	18 82	18 93	18 90	19 08	13 85	15 51	17 17	14 44
Warsaw Good quality (zloty p quintal)	24 25	24 25	24 25	24 25	24 44	18 67	13 12	21 58	13.26
Winnipeg No 2 (cents p 56 lb)	83 3/4	85 7/8	93 1/4	90 3/8	88 7/8	69 3/4	42 5/8	98 3/4	43 1/4
Minneapolis No 2 (cents p 56 lb)	72 3/8	71 7/8	77 3/4	77 5/8	77 1/2	84 7/8	52 3/8	99 7/8	53 1/2
Groningen (*c*) Home grown (fl p quintal)	7 35	n q	7 57	7 55	7 46	8 00	* 6 72	* 8 12	7.08

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* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a*) Thursday prices — *b*) Saturday prices — *c*) Prices on preceding Tuesday

1) August July — 2) As from February 1937 N° 2 Hard quality, basis 80 kg p hl — 3) Fixed producers' prices for the *price region* of Berlin. See *Govt Measures*, No 2, p 57, and *Crop Report*, Aug 1936, p 609, and July 1937, p 571 — 4) Commencing Aug 1937, "Bahia" quality — 5) During August 1935, spot quotations in the free market Sept 1935-Aug 1936, prices in the regulated market, delivery same month, subsequently, fixed producers' prices (see note in *Crop Report*, Sept 1936, p 691, and Sept 1937, p 750). — 6) Commencing Aug 1936, prices free at mills in Milan (see note in *Crop Report*, June 1937 p 474) — 7) New crop — 8) 17 Sept 104. — 9) Shipping October. — 10) Shipping November — 11) N° 3 Northern Manitoba, Atlantic — 12) New crop, shipping January-February — 13) Afloat

DESCRIPTION	15 Oct. 1937	8 Oct. 1937	1 Oct. 1937	24 Sept. 1937	AVERAGE Sept. 1937	Oct. 1936	Oct. 1935	Commercial Season 1) 1936-37	1935-36
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	25.75	26.00	26.00	25.50	* 25.50	26.20	17.00	* 25.12	* 15.97
Braila: Average quality (lei p. quintal)	355	355	350	350	340	293	256	* 321	242
Prague: Malting, good quality; 68 kg. hl. (crs. p. quintal) 2)	132.00	132.00	132.00	131.00	131.00	128.00	128.00	* 135.05	* 131.70
Winnipeg: No. 4 Western (cents p. 48 lb.)	61	61 3/4	62 5/8	59 1/2	57 1/8	58	31 7/8	66 3/4	34 3/4
Chicago: Feeding (on sample; cents p. 48 lb.)	49 1/2	49	50	58	62 1/4	78 1/4	46 1/2	74 1/4	45 1/4
Minneapolis: No. 2 Feeding (c. p. 48 lb.). 3)	...	54 1/2	56 1/2	55 1/2	54 1/4	81 1/2	40	77 1/2	39 3/8
Berlin: Home grown fodder (free at Brandenburg stations; Rm. p. quint.) 4)	16.90	16.90	16.90	16.70	16.70	16.40	16.40	16.94	16.98
Antwerp: (in bond; francs per quintal):									
Danubian	110.00	112.00	111.00	106.50	104.85	102.00	73.85	107.75	74.10
No. 2 Federal	102.50	109.00	110.00	107.75	103.20	n. q.	n. q.	n. q.	n. q.
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	55/6	55/6	55/-	55/-	55/-	41/2 1/2	43/-	* 41/2	38/3
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	22/1 3/4	n. q.	* 23/5	n. q.
Russian (Azoff, Black Sea)	27/6	28/-	n. q.	27/3	25/9 3/4	n. q.	15/3 1/4	n. q.	* 14/10
Canadian No. 3 Western	29/-	29/4 1/2	29/1 1/2	28/6	27/1 1/2	25/11 3/4	16/9 1/2	* 27/9	18/0 1/2
Californian malting (sh. p. 448 lb.)	[6] 41/-	[6] 41/-	39/6	39/-	37/9	40/9	[7] 25/4 3/4	* 40/6	24/8 3/4
Plata (64-65 kg p. hl.)	[7] 26/1 1/2	[7] 26/6	[7] 26/10 1/2	[7] 26/6	[7] 25/6 3/4	[7] 21/9 1/2	15/9	25/0 3/4	15/11 1/2
Persian (Iraquian)	[8] 26/6	[8] 26/9	[8] 27/-	[8] 26/6	* 25/10	[9] 21/6	[7] 15/6 3/4	23/11	15/4 1/4
Groningen a): Home-grown, winter (fl. p q.)	7.52	7.50	7.50	7.40	7.29	7.53	4.83	7.68	4.91
Oats.									
Braila: Good quality (lei p quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	309	* 274	* 294
Winnipeg: No. 2 White (cents per 34 lb)	55 1/8	52 7/8	53 3/8	53 7/8	51 1/2	44 1/8	34 1/4	52 7/8	34 3/4
Chicago: No. 2 White (cents per 32 lb.)	32 1/8	31 3/4	34	34	33 1/4	44 3/8	32 1/8	49 3/4	32 1/4
Buenos Aires b): Current quality (paper pesos p. quintal)	6.30	6.15	6.30	6.25	6.11	5.94	6.63	6.25	* 6.38
Berlin: Home-grown (free at Brandenburg stations; Rm. p quint. 4)	16.30	16.30	16.30	16.10	16.10	16.00	16.00	16.77	16.79
Paris: Home-grown, black and other (delivery regional depots; frs. p. quintal)	129.40	129.25	131.50	131.25	130.95	* 114.35	53.25	115.80	66.40
London (Mark Lane): Home-grown white (sh. p. 336 lb., on farm)	27/6	27/6	27/-	26/6	26/-	19/9 1/2	19/6	23/9 3/4	18/7 1/2
Liverpool and London (c.i.f. parcels; shipping current month; sh. p. 320 lb.):									
Canadian, No. 2 Western (Atlantic)	29/9	28/3	29/6	[10] 30/3	[10] 27/11 1/4	22/4	18/5	23/4 1/2	18/9
Plata (f. a. q.)	[7] 16/9	[7] 17/-	[8] 17/1 1/2	[7] 17/1 1/2	[7] 16/8 1/2	14/10	17/2 1/2	16/3 3/4	14/5
Milan (c) (lire p. quintal):									
Home-grown	101.50	101.50	101.50	101.50	101.50	94.50	99.00	99.60	* 97.10
Foreign	98.00	98.00	98.00	98.00	98.00	95.00	93.00	100.45	92.60
Maize.									
Braila: Average quality (lei p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	279	220	* 264	243
Chicago: No. 3 Yellow (cents p. 56 lb.)	67	64	80	95	105	108	83 3/4	103 3/8	72 5/8
Buenos Aires (b): Yellow Plata (paper pesos p. quintal)	6.97	6.77	6.82	6.67	6.61	5.91	4.53	5.85	4.51
Antwerp (in bond; francs p. quintal):									
Yellow Plata	98.50	98.50	100.00	103.50	100.10	78.65	56.10	78.65	56.75
Cinquantino (Argentine "Cuarentino")	102.25	106.00	105.00	104.00	103.00	90.45	62.00	83.10	60.45
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):									
Danubian	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/5 1/2	n. q.	* 23/5	* 16/11
Yellow Plata	27/1 1/2	27/1 1/2	27/9	27/6	27/-	22/2	16/8 1/2	22/4	16/0 1/2
No. 2 White flat African	[8] 26/9	n. q.	27/3	[8] 27/-	26/9	n. q.	17/6 3/4	n. q.	* 17/-
Milan (c): «Alto Milanese» (lire p. quint.) 5)	82.00	82.00	82.00	82.00	82.00	84.00	80.60	85.55	81.75

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — a) Prices on preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats, August-July; maize, May-April. — 2) Monopoly price, paid to producers, for delivery Prague; see *Crop Report* Aug. 1936, p. 609. — 3) From August 1936, delivered barley only quoted. — 4) Fixed producers'. prices for the *price region* of Berlin. See *Govt. Measures*, No. 2, p. 57, and *Crop Report* Aug. 1936, p. 609, and July 1937, p. 571. — 5) Maximum fixed price, Oct.-Dec. 1936, free at Milan station, subsequently, free at producer's station. — 6) Shipping Nov.-Dec. and Jan. — 7) Shipping Jan.-Feb. — 8) Shipping Dec.-Jan. — 9) Shipping Oct.-Nov.

DESCRIPTION	15 Oct. 1937	8 Oct. 1937	1 Oct. 1937	24 Sept. 1937	Average				
					Sept. 1937	Oct. 1936	Oct. 1935	Commercial Season 1)	
								1936	1935
Rice (milled).									
Valencia (*a*). No. 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	55.70	* 57.30	56.60
Milan (*b*) (lire p. quintal):									
Vialone, oiled 2)	n. q.	n. q.	n. q.	n. q.	* 180.00	166.00	161.85	177.30	159.20
Maratelli, oiled 2)	183.50	183.50	183.50	n. q.	* 158.00	144.80	144.60	155.05	136.60
Originario, white 2)	156.50	156.50	156.50	n. q.	131.00	123.10	127.85	125.65	121.75
Rangoon (rupees and annas p. 7500 lb.):									
No. 2 Burma	282-8	289-8	285-0	283-8	6) 275-10	239-8	277-8	264- 6	253-8
Small mills' specials	255-0	262-0	257-8	256-0	7) 248-2	219-0	245-3	223- 5	227-4
Big mills' specials	255-0	260-0	252-8	250-0	8) 242-12	215-0	243-0	214-12	219-9
Saigon (Indo-chinese piastres p. quintal):									
No. 1 Round white, 25 % brokens	9.84	9.93	9.93	9.61	9) 9.48	5.81	4.54	4.96	4.18
No. 2 Japan, 40 % brokens	9.68	9.60	9.60	9.28	10) 9.15	5.59	4.22	4.74	3.96
Marseilles (*a*): No. 1 Saigon (c. i. f.; frs p. quintal)	130.00	136.00	135.00	125.00	131.90	72.70	63.80	63.65	54.80
London (*a*) (c. i. f.; shillings p. cwt.):									
No. 3 Spanish Belloch oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/4½	* 10/4½	* 12/7
No. 6 Italian good, oiled	17/6	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 14/0½
American Blue Rose, extra fancy	11) 15/6	11) 15/1½	11) 15/7½	11) 15/10½	11) 15/11¾	17/11¾	15/4¼	18/4¼	* 15/5¾
No. 2 Rangoon or Bassein (Burma) 3)	10/3	10/3	10/-	9/10½	9/10	7/ 9½	8/6	7/9¾	7/8
No. 1 Saigon	10/1½	10/-	10/1½	9/ 9	10/ 1¾	7/11½	8/3	8/0¼	7/5¼
Siam Super, white 3)	10/7½	11/-	11/1½	11/3	11/ 3½	9/ 1¼	9 10½	9/0½	9/2¾
Tokyo: Chumai (brown Japanese, average quality, yen p. koku)	...	...	...	...	...	29.68	31.32	30.70	29.87
Linseed.									
Buenos Aires (*a*): Current quality (paper pesos p. quintal)	16 60	16.20	16.20	15.90	16 00	14.04	13 30	14.34	12.28
Bombay. Bold (rupees p. cwt.)	8-4-0	8-4-0	8-2-4	8-2-4	8-3-4	* 7-1-0	6-14-9	7-6-7	6-10-8
Antwerp: Plata (in bond; frs. p. quint.)	192.50	192.00	192.50	192.00	191.25	163.80	151.60	162.25	127.55
London (c. i. f.; £ p. long ton.)									
Plata (delivery Hull)	13-13-9	13-12-6	13-11-3	13- 7-6	13- 5-7	11-7-6	10-12-6	11- 6-4	9-13-2
Bombay Bold	15-18-9	15-16-3	16- 0-0	15-16-3	15-13-9	13-9-0	13- 3-5	13-12-1	12- 5-5
Duluth: No. 1 Northern (futures; cents p. 56 lb.)	12) 204	12) 202	13) 207	13) 199	13) 200	12) 203½	12) 174⅞	191	172¼
Cottonseed.								1936-37	1935-36
Alexandria (*a*) (piastres p. ardeb):									
Upper Egypt	55.5	53.9	56.2	55 8	56.6	68.4	63.7	77.8	69.7
Sakellaridis	51.7	49.9	52.2	51.7	* 51.7	64.1	60.6	72.6	* 64.0
London: Sakellaridis (c.i.f., delivery Hull; £ p. long ton) 4)	6-0-0	6-1-3	6-7-6	6-3-9	6-5-11	n. 6-12-6	n. 6-11-3	7-18-8	n. 6-13-7
Cotton.									
New Orleans: Middling (cents p. lb.)	8.34	7.74	8.37	8.31	8.88	12.27	11.16	12.78	11.64
New York: Middling (cents p. lb.)	8.56	8.05	8.55	8.53	9.04	12.30	11.27	12.91	11.74
Bombay (rupees p. 784 lb.):									
Broach, f. g. (futures)	14) 163-8	14) 163-8	14) 168-0	14) 178-8	14) 185-7	14) 220-0	14) 215 4	224-14	210- 4
Broach, f. g. (spot)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	231-8	* 228- 4	* 219- 0
Oomra, fine (spot)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	206-0	* 214-14	198-12
Alexandria (*a*) (talaris p. kantar):									
Sakellaridis, f. g. f.	15,00	14.20	15.60	15.95	15.96	18.90	15.12	19.22	16.11
Ashmuni, f. g. f.	10.70	9.85	10.95	11.50	11.59	13.27	12.24	15.19	13.61
Bremen: Middling (U. S. cents p. lb.)	10.25	9.97	10.16	10.45	11.18	14,41	13.39	15.01	13.88
M. g. Broach, f. g. (pence p. lb.)	n. 4.95	n. 4.95	n. 5.05	n. 5.05	n. 5.21	n. 5.65	n. 6.41	n. 5.78	n. 5.86
Le Havre: Middling (Gulf; frs p. 50 kg.)	373.50	373.00	388.00	388.00	380.00	347.10	235.10	366.60	240.00
Liverpool (pence per lb.):									
Middling, fair 5)	5.67	5.60	5.74	5.93	6.21	n. 8.04	n. 7.49	n. 8.26	n. 7.58
Middling	4.82	4.75	4.89	5.08	5.36	6.93	6.49	7.11	6.53
São Paulo, g. f.	5.02	4.90	5.04	5.23	5.53	6.98	6.74	7.21	6.81
Broach, good staple, f. g.	n. 3.89	n. 3.78	n. 3.90	n. 4.18	n. 4.47	n. 5.59	5.65	n. 5.71	5.43
C. P. Oomra, superfine	4.19	4.08	4,20	4.43	4.68	5.75	5.74	5.85	5.61
Egyptian Sakellaridis, f. g. f.	n. 8.54	7.69	8.25	8.52	8.77	10.92	8.84	10.79	9.18
Upper Egyptian, f. g. f.	6.27	6.07	6.59	6.75	7.17	7.52	7.10	8.46	7.49

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Producers' prices including sacks: f. o. r., from 22 Oct. 1936 to 20 Feb. 1937 and from 1st Oct. 1937; during the intermediate period, prices free at wholesalers' stores. See also this *Crop Report*, p. 861. — 3) As from June 1936, "London Standard". — 4) Spot prices, delivery London, as from 15 Jan. 1937. — 5) Commencing August 1937 the quotations are based on the official classification "Universal Standards" of 1935 instead of that of 1923; this refers to best quality "Super good middling" — 6) Revised prices: 10 Sept.: 273-8; 3 Sept.: 271-8; Aug. average: 270-0. — 7) Revised prices: 17 Sept.: 246-8; Aug. average: 242-8. — 8) Revised prices: 10 Sept. 242-8; Aug. average: 237-8. — 9) 17 Sept.: 9.85; 10 Sept. 9.44; 3 Sept.: 9.03. — 10) 17 Sept. 9.52; 10 Sept.: 9.19; 3 Sept.: 8.62. — 11) Shipping Oct.-Nov. — 12) December futures. — 13) September futures. — 14) April-May futures.

Description	15 Oct. 1937	8 Oct. 1937	1 Oct. 1937	24 Sept. 1937	Average				
					Sept. 1937	Oct. 1936	Oct. 1935	Commercial Season	
								1936	1935
Bacon.									
London, Provision Exchange (*a*) (shillings, p. cwt.):									
English, No. 1, lean sizable	96/-	100/-	105/-	105/-	103/-	91/7	92/-	91/9	89/11
Danish, No. 1, sizable	95/-	99/-	106/-	106/-	103/6	96/10	92/-	93/8	88/6
Irish, No. 1, sizable	90/6	93/6	102/6	104/6	102/10	92/-	91/6	91/10	88/8
Lithuanian, No. 1, sizable	88/-	92/-	100/-	100/-	97/6	86/5	88/6	84/10	82/1
Dutch, No. 1, sizable	91/-	95/-	104/-	106/-	102/6	92/10	90/3	89/7	85/4
Polish, No. 1, sizable	88/-	92/-	100/-	100/-	97/6	86/5	86/6	84/9	80/-
Swedish, No. 1, sizable	91/-	95/-	104/-	106/-	102/6	94/10	90/3	89/5	85/2
Canadian, No. 1, sizable	88/-	92/-	100/-	100/-	97/6	86/2	86/6	84/-	79/3
Butter.									
Copenhagen (*b*): Danish (crs. p. quint.).	260.00	250.00	250.00	250.00	243.80	215.00	232.40	207.15	192.30
Leeuwarden, Commission for butter quotations (*b*): Dutch (cents p. kg.) 1).	97	93	92	88	83 1/2	62 3/4	65	57 5/8	48 7/8
Antwerp (frs. p kg.)	24.80	25.30	23.30	24.30	25.00	18.15	20.95	19.00	17.90
Germany (*c*)(fixed prices, Rm.p. 50 kg.) 2):									
With quality mark	130.00	130.00	130.00	130.00	130.00	130.00	130 00	130.00	130.00
Creamery	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00
London (*d*): English creamery, finest quality (shillings p. cwt)	158/8	154/-	149/4	149/4	146/6	130/-	140/11	129/1	119/6
London Provision Exchange (*a*) (shillings p. cwt.):									
Danish creamery, unsalted	145/-	139/6	139/6	138/-	134/4	122/4	131/9	119/1	112/9
Estonian, unsalted	132/6	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 105/7	* 81/11
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 86/1
Dutch creamery, unsalted	133/6	129/-	126/-	121/6	115/4	92/4	115/7	98/1	93/4
Argentine, finest, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	* 94/-	n. q.	* 97/1	* 82/10
Siberian, salted	132/6	n. q.	n. q.	n. q.	* 111/8	91/8	* 113/10	* 100/2	* 90/7
Australian, finest, salted.	134/6	130/-	127 6	119/6	116/8	99/5	119/-	99/10	89/7
New Zealand, finest, salted	135/-	130/-	127/6	120/6	117/2	99/2	119.4	100/8	91/1
Cheese.									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1935 3)	1,050.00	1,050.00	1,050.00	1 050.00	1.050.00	812.50	758.75	* 870.60	775.45
Parmigiano-Reggiano, 1st quality, production 1936 3)	900.00	900.00	900.00	900.00	900,00	834.00	701.25	896.70	734.25
Gorgonzola green, mature, choice.	650.00	650.00	650.00	650.00	650.00	650.00	562.50	569.80	508.90
Rome: Roman Pecorino, choice 4) (lire p.q.)	950.00	950.00	950.00	950.00	950.00	975.00	1.095.00	1,121.90	865.50
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg.)	23.50	24.25	23.50	23.25	20.94	17.55	19.87	17.56	14.84
Gouda (*e*). Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made 1st qual.(florins p. 50 kg)	31.00	31.00	30.50	29.00	28.25	23.80	27.00	21.49	19.75
Kempten (*c*) (Rm. p. 50 kg.):									
Soft cheese, green 20 % butterfat.	29.00	29.00	29.00	29.00	29.00	26.00	26.00	26.50	26.00
Emmenthal from the Allgäu, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	77.00
London Provision Exchange (*a*) (shillings p. cwt.):									
English Cheddar, finest farmers	91/-	91/-	91/-	91/-	90 -	83/-	65/6	* 80/-	* 77/8
English Cheshire, Nat. Mark Selected.	100/4	93/4	93/4	91/-	5) 90/1	83/4	80/9	78/3	80/5
Italian Gorgonzola	105/-	103/10	102/8	98/-	98/3	* 106/2	110/2	* 106/7	* 102/2
Dutch Edam, 40 + (*d*)	69/-	69/-	67/3	62/-	62/10	51/-	61/10	48/7	44/4
Canadian, finest white (*d*)	70/6	70/6	70/6	69/6	70/1	69/6	60/4	66/4	60/3
New Zealand, finest white	70/6	70/9	70/3	67/6	68/3	70/-	59/11	60/8	48/9

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Average prices Thursdays, and Friday mornings. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the week. — *e*) Saturday prices.

1) Home prices are increased by a consumption tax of 55 cents per kg. from 29 August to 18 September, and of 50 cents subsequently. — 2) See *Crop Report*, April 1934, p. 306. — 3) Prices of 1935 cheese are compared with the yearly and monthly averages of cheese made in 1933 and 1934; prices of 1936 cheese with 1934 and 1935. The yearly averages refer to the periods from Sept. to August. As from 6 Oct. 1936, maximum prices, between wholesaler and retailer, for choicest quality, packing included. Up to the end of February 1937 and re-commencing July 1937 these prices were f. o. r. sellers' stations; during the intermediate period, free at retailers' shops. — 4) Export quality until the end of June 1937; subsequently Home consumption quality. — 5) 17 Sept. (revision) 89/10.

DESCRIPTION	15 Oct. 1937	8 Oct. 1937	1 Oct. 1937	24 Sept. 1937	AVERAGE Sept. 1937	AVERAGE Oct. 1936	AVERAGE Oct. 1935	AVERAGE Commercial Season 1) 1936	AVERAGE Commercial Season 1) 1935
Eggs.									
Antwerp, auction: Belgian, average qual. (frs. p. 100)	78.00	77.00	79.00	72.00	68.50	75.40	77.00	50.80	48.35
Denmark (*a*): Danish for export (crs. per quintal)	156.00	156.00	156.00	150.00	139.50	150.80	156.00	108.20	106.75
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100):									
Fixed price for export into Germany	5.20	5.20	5.20	5.20	7) 5.20	* 5.53	4.60	3.83	3.75
Price for other destinations	4.95	4.95	4.95	5.00	7) 4.62	5.02	4.40	3.46	2.97
Warsaw (*b*): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	147.60	145.22	133.20	132.20	125.50	116.73	123.00	100.13	104.43
Berlin (*c*): German, big, new laid (Rm. p. 100):									
marked « G I S », 65 gr. each	11.25	11.25	11.25	11.25	11.25	12.00	11.50	10.77	10.57
marked « G I B », 55/60 gr. each	10.25	10.25	10.25	10.25	10.25	10.00	10.00	9.26	9.34
London Egg Exchange (*d*) (sh. p. 120):									
English, National Mark, specials	22/-	22/-	22/6	21/6	21/-	23/0¾	19/9½	16/9	15/9
Belgian, 15 ½ lb. p. 120	n. q.	13/6	13/7½	13/6	13/0½	13/9	* 11/8	* 10/8¾	* 11/3¼
Danish, 18 lb. p. 120	15/3	15/6	8) 14/6	8) 14/6	8) 14/1	15/3¼	14/8	12/8½	12/5
Northern Irish, 18 lb. p. 120 2)	20/9	20/9	21/-	20/1½	19/8¼	n. q.	19/4¾	* 14/8¾	15/1½
Dutch, all brown, 67/69 grams each	16/4½	16/3	16/-	16/-	15/6	16/10½	16/9	13/10	13/2½
Polish, 51/52 grams each	8/5¼	8/9	8/9	8/5	8/5	8/4	8/2	* 7/2½	* 7/1¼
Chinese, violet	9/9	9/10½	9/10½	9/7½	* 19/6½	9/4½	9/5½	* 9/2½	* 8/10½
Australian, 16 lb. p. 120	13/9	14/3	14/-	n. q.	n. q.	13/3¼	12/9	* 12/8¾	* 11/2½
Ocean freight rates 3)									
Shipments of wheat and maize.								1936-37	1935-36
Rates in shillings per quarter:									
Churchill to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. 4/-	* 3/-	n. q.	* 2/10¼	n. q.
Montreal to United Kingdom	4/1½	4/1½	3/9	3/3½	3/4¼	2/3	1/7½	* 2/6	* 2/1
St. John to Liverpool 4)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/10½	* 2/1½
New York to Liverpool 4)	3/9	3/9	3/9	n. 3/3	* 3/6	n. q.	1/6	n. q.	* 1/6
Northern Range to U.K./Continent	5/-	5/-	5/-	4/6	4/4½	n. q.	2/-	* 2/9	1/10
Gulf to United Kingdom 4)	5/6	5/6	5/6	5/6	5/6	n. q.	2/6	n. q.	* 2/6
Rates in shillings per long ton:									
Danube to Antwerp/Hamburg	n.30/6	n.30/6	n.26/-	n.26/-	25/3	19/7	16/3	* 20/4	* 15/7
Black Sea to Antwerp/Hamburg	24/3	24/3	23/9	22/3	21/10	16/6	10/1	* 16/10	* 10/2
North Pacific to United Kingdom	46/3	45/3	n.43/9	n.44/-	n.43/5	24/4	20/3	* 29/9	* 20/-
La Plata « Down River » 5)/Bahia Blanca to U. K./Continent	n.33/6	33/9	33/3	n.32/6	32/5	n.18/9	16/-	23/11	16/6
La Plata « Up River » 6)/Necochea to U. K./Continent	34/-	34/3	34/3	34/3	33/11	20/1	17/2	25/2	17/8
South Australia to U. K./Continent (in bulk)	45/9	45/9	45/3	n. q.	*n.43/7	27/2	n.24/-	34/1	25/-
Western Australia to U. K./Continent (in bags)	n.44/9	n.44/9	n.44/9	n. q.	*n.42/11	n.25/9	n.22/-	37/3	26/5
New South Wales to U. K./Continent (in bulk)	n.41/6	n.41/6	n.41/6	n.41/6	*n.41/6	n. q.	22/11	34/11	23/11
Shipments of rice.								1936	1935
Rates in shillings per long ton:									
Saigon to Europe	48/3	47/6	47/3	47/3	46/6	27/-	25/3	26/3	* 22/7
Burma to U. K./Continent	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 24/-	* 21/8

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* Indicates that the product, or the ocean freight, was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Average prices for weeks commencing on Fridays indicated. — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) From Feb. 1936 "Extra special" quality. — 3) Average rates for entire cargoes, except where otherwise stated, relating often to contracts made, during a period extending back several months, to operate during the weeks specified. — 4) Rates for parcels by liners. — 5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 7) See note on p. 861. — 8) Eggs weighing 17 lb. per 120.

AVERAGE MONTHLY PRICES BY COUNTRIES 1)

GERMANY (Prices in Reichsmarks per quintal)

Groups	Description	Average Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1936	July-Sept. 1935	Agricultural year 2) 1936-37	1935-36
A I	†Wheat (Berlin) 3)	20.10	19.90	20.80	20.80	20.47	20.12	20.57	20.48
	†Rye (Berlin) 3)	18.40	18.40	18.10	17.10	16.03	16.13	16.68	16.71
	†Barley, feeding (Berlin) 3)	16.70	16.50	16.30	17.80	16.33	16.18	16.98	16.95
	†Oats (Berlin) 3)	16.10	15.80	17.60	17.40	16.70	16.53	16.77	16.73
	§Potatoes, red (Berlin) 4)	4.30	5.90	8.64	* 5.35	* 4.93	* 4.82	* 4.82	* 4.88
A II	†Oxen, live weight (Berlin)	86.00	86.00	84.00	83.33	84.00	83.33	83.50	83.83
	Calves, live weight (Berlin)	95.40	95.40	93.20	90.20	122.73	94.47	96.75	99.32
	†Pigs, 220-265 lb., live weight (Berlin)	105.20	107.00	103.60	99.00	101.00	101.73	99.75	101.28
	Milk, fresh, per hectol., (Berlin)	14.60	14.60	14.60	14.60	14.60	14.50	14.61	14.58
	†Butter with quality mark	260.00	260.00	260.00	260.00	260.00	260.00	260.00	260.00
	†Cheese, Emmenthal variety (Kempten)	160.00	160.00	160.00	160.00	160.00	154,00	160,00	159.00
	†Eggs, new laid, large, marked " G. I. S. " per 100 (Berlin)	11.25	11.25	9.25	9.62	11.45	11.07	11.27	10.55
B I	Basic slag (Aachen) 5)	0.220	0.220	0.220	0.208	* 0.242	0.240	0.230	0.235
	§Superphosphate of lime, 18 % (Hildesheim) 5)	0.314	0.314	0.303	0.309	0.310	0.289	0.309	0.288
	§Potash salts, 40 % (mine stations) 5) 6)	5.00	5.00	4.91	5.78	6.61	6.61	6.48	6.67
	Sulphate of Ammonia 5)	0.430	0.420	0.410	0.480	0.605	0.630	0.600	0.676
B II	Wheat-bran (Hamburg)	...	...	...	12.25	12.25	12.31	12.25	12.26
	Linseed cake (Hamburg)	16.30	16.30	16.30	16.30	16.97	16.63	16.47	17.13
	Coconut cake (Hamburg)	14.70	14.70	14.70	14.70	16.50	16.70	15.15	17.22
	Groundnut cake (Hamburg)	15.80	15.80	15.80	15.80	16.53	16.10	15.98	16.70
	Crushed soya extraction residue (Hamburg)	15.50	15.50	15.50	15.50	15.50	14.67	15.50	15.29

BELGIUM (Prices in Belgian francs per quintal)

Groups	Description	Average Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1936	July-Sept. 1935	Agricultural year 2) 1936-37	1935-36
A I	Wheat (Antwerp)	132.00	140.75	145.40	150.65	119.55	82.15	132.85	98.05
	Rye (Antwerp)	127.25	130.75	133.30	* 133.80	69.40	71.70	* 112.35	69.85
	Barley (Antwerp)	125.75	129.00	130.90	* 130.10	88.80	81.45	* 116.35	82.75
	Oats (Antwerp)	116.25	124.00	131.60	129.95	96.00	88.35	109.80	92.25
A II	Oxen, live weight (Curegem-Anderlecht)	515.00	515.00	520.00	536.00	512.00	470.00	506.00	483.25
	Calves, live weight (Curegem-Anderlecht)	798.00	753.00	738.00	774.00	717.35	695.00	780.00	717.00
	Pigs, live weight (Curegem-Anderlecht)	583.00	605.00	633.00	521.00	640.35	660.65	593.00	646.00
	Butter (Antwerp)	2,500.00	2,365.00	2,148.00	1,892.65	1,787.35	1,811.65	2,010.00	1,880.00
	Eggs per 100 (Antwerp)	68.50	53.25	47.80	34.50	53.70	52.35	48.50	52.65
B I	Basic slag (Brussels) 5)	1.38	1.36	1.37	1.35	1.75	1.50	1.65	1.55
	Superphosphate of lime (Brussels) 5)	2.40	2.40	1.87	1.80	2.05	1.60	1.90	1.60
	Sylvinite-Kainite, 14 % (Brussels)	28.50	27.00	29.00	29.00	27.50	20.85	28.45	24.50
	§Nitrate of soda, 15 ½ % (Brussels)	112.25	112.25	112.25	112.25	n. q.	98.25	* 110.80	103.85
	§Sulphate of ammonia, 20 % (Brussels)	97.00	97.00	97.00	97.00	n. q.	83.00	* 95.55	88.60
B II	Maize, Plata (Antwerp)	100.10	94.05	92.25	91.80	81.05	54.20	83.05	57.05
	Linseed cake (Brussels)	n. q.	n. q.	n. q.	7) 107.50	108.35	85.75	* 111.55	88.30
	Coconut cake (Brussels)	118.00	119.00	119.50	115.65	101.50	95.15	107.30	97.60
	Groundnut cake (Brussels)	n. q.	n. q.	n. q.	7) 111.00	108.35	90.85	* 112.05	98.15
	Palm-kernel cake (Brussels)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.

DENMARK (Prices in Danish crowns per quintal)

Groups	Description	Average Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1936	July-Sept. 1935	Agricultural year 2) 1936-37	1935-36
A I	Wheat (Copenhagen)	18.34	* 17.31	21.12	20.66	* 16.16	12.46	19.25	13.50
	Barley (Copenhagen)	17.62	16.92	18.03	18.99	13.54	12.09	17.27	12.06
	Oats (Copenhagen)	15.19	17.25	18.87	18.41	14.70	12.64	15.98	12.80
	†Cows, live weight (Copenhagen)	41.50	39.75	37.87	32.53	38.07	34.87	34.34	36.17
A II	†Pigs, live weight	187.50	185.50	170.80	169.33	172.00	163.13	167.25	165.75
	†Butter (Copenhagen)	243.80	225.00	210.80	193.55	221.53	193.83	207.35	205.05
	†Eggs	139.50	112.40	97.00	70.53	104.83	106.63	101.95	113.67

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* Indicates that the product was not quoted during part of the period under review. — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal. — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*.

1) Prices, for several countries, of plant (A I) and animal (A II) products sold by the farmer; also of fertilizers (B I) and concentrated feedingstuffs for livestock (B II) bought by the farmer, are published quarterly (Jan., April, July and Oct.). In cases where the market is not indicated, the price is the average for the whole country. — 2) July to June. — 3) See notes 3 and 4 on pp. 844-845. — 4) Red and white potatoes as from 1935. — 5) Prices per unit of fertilizer material in 100 kg. — 6) Free at buyers' stations. — 7) May only.

DENMARK (*continued*)

Groups	Description	Sept 1937	Aug 1937	July 1937	Average				
					April-June 1937	July-Sept 1936	July Sept 1935	Agricultural year	
								1935-36	1934-35
B I	Superphosphate 18 %	6 30	6 30	6 50	6 50	6 15	6 13	6 33	6 21
	Potash salts 40 %	12 95	12 45	13 95	13 95	13 24	12 43	13 52	13 32
	Sulphate of ammonia	15.85	15 65	16 25	16 25	15 45	15 50	15 75	15.76
	Nitrate of lime	15 80	15 60	16 20	16 20	15 40	15.45	15 70	15.71
B II	Rye, imported (Jutland)	18 90	18 40	* 20,15	20 55	12 84	10.81	16 80	12.03
	Maize, Plata (Jutland)	15 18	14 87	14 32	14 20	13 83	11 33	13 86	12.62
	Wheat-bran, Danish (Copenhagen)	14 56	14 42	14 35	15 51	12 02	10 69	14 32	10.63
	Cottonseed cake (Copenhagen)	16 68	16 95	17 12	17 02	15 73	13 44	17 03	13.89
	Sunflower-seed cake (Copenhagen)	17 88	18 05	17 90	17 92	15 36	13 36	17 15	13.58
	Groundnut cake (Copenhagen)	17 84	18 00	17 90	17 78	17,34	14 28	17 97	15.11
	Crushed soya extraction residue (Copenhagen)	17 76	18 07	17 85	17 39	16 27	13 12	17 13	14.36

FRANCE (Prices in francs per quintal)

Groups	Description	Sept 1937	Aug 1937	July 1937	April-June 1937	July-Sept 1936	July Sept 1935	1935-36	1934-35
A I	†Wheat (Paris) 1)	181 00	180 00	157 00	154 00	120 20	76 60	145 05	89 65
	Rye (Paris) 2)	148 00	142 00		* 124 50	99 00	55 35	* 128 35	68.85
	Barley, malting (Paris) 2)	176 00	158 00		* 128 00	98 00	55 35	* 126 80	69.75
	†Oats (Paris)	130 95	121 50	* 116 25	121 75	90 20	42 55	113 20	62 45
	§Wine, red, 10° (Montpellier) 3)				15 00	8 99	4 50	13 00	—
A II	†Beef, dead weight, 2nd quality (Paris)	868 00	883 00	916 00	878 65	642 00	496 65	739 00	521.00
	†Mutton, dead weight, 2nd quality (Paris)	1,118 00	1,064 00	1,161 00	1 181 00	974 65	989 00	1,090 00	994.00
	†Pigs, live weight (Paris)	701 00	700 00	728 00	600 00	612 35	388 00	605 00	455 00
B I	§Basic slag, 18 % (Thionville)	18.55	18 55	18 55	18.55	18 55	20 00	18 55	18.90
	§Superphosphate 14 % (North and East)	36 20	36 20	31 30	31 30	25 15	26 20	28 80	24 90
	§Sylvinite, rich, 18 %	14 02	14 02	14 02	16 30	16 30	14 80	16 30	14 90
	Nitrate of soda (Dunkirk)	n q	n. q.	n. q.	91 85	79 00	*73 50	* 86 10	* 76.65
	Sulphate of ammonia 20 4 %	100 00	99 00	n q	92 50	83 00	82 25	* 88 20	81.50
B II	Linseed cake (North)	129 75	* 118 00	n q	92 35	78 90	55 10	91 55	61.65
	Coconut cake (Coudekerque)	n q	n q	n. q.	n. q.	87 50	58 50	n. q.	* 64.50
	Groundnut cake (Marseilles)	n q	n q	n q	4) 91 35	54 00	50 00	* 85 10	52 20

GREAT BRITAIN (Prices in shillings and pence: "A" per cwt: "B" per long ton).

Groups	Description	Sept 1937	Aug 1937	July 1937	April-June 1937	July-Sept 1936	July Sept 1935	1935-36	1934-35
A I	Wheat	8/8	9/5	9 8	9/10 1/4	7/4 1/2	4/11 3/4	8/9 1/2	5/11 1/2
	Barley, feeding	12/3	11/2	9/6	9/11 3/4	8/2 3/4	8/3 1/2	9 6	8/1 1/4
	Oats	8 5	8 10	9/4	8/9 3/4	6/7 1/2	6/8	7/7 3/4	6/2 1/2
	§Potatoes (London)	6/6	* 7/6	n. q.	10/2 3/4	* 6/3 3/4	6/9	* 8/7 3/4	* 7/5 1/2
A II	†Beef, dead weight (London)	69/1	80/6	79/11	75/4	69/9	65/-	65/7	61/3
	†Mutton, dead weight (London)	83/5	88/1	94/6	105/5	84/10	76/3	89/3	74/8
	†Pork, dead weight (London)	82/10	78/2	71/2	73/1	71 4	65/-	75/6	* 69/1
	Butter (London)	146/6	144/8	137/8	133/9	137 7	122/5	133/9	125/-
	†Cheese, Cheddar (London)	90/-	88/6	n q.	91/10	* 77/1	61/8	* 84/8	* 72/11
	Eggs, new laid per 100 (London)	18 9	15/3	14/-	9/11 1/4	14 6 1/4	14/0 1/4	14/-	13/7 1/2
B I	§Basic slag 14 % (London)	43/-	43/-	43/-	46/-	43/-	43/-	44/3	43/-
	Superphosphate, 16 % (London)	60/-	60/-	60/-	60/-	56/-	56/-	58/-	56/-
	Kainite 14 % (London)	55/-	55/-	55/-	55/-	55/-	54/8	55/-	54/11
	§Nitrate of soda, 15 ½ % (London)	160/-	160/-	152/-	152/-	152/-	152/-	152/-	152/-
	§Sulphate of ammonia 20 6 % (London)	145/-	143/-	145/-	145/-	138/4	138/4	141/4	141/4
B II	Bran, British (London)	144/-	146/2	142/3	140/4	118/10	103/5	138/10	111/7
	Bran, middlings, imported (London)	145/9	144/5	144/3	144/9	119/9	106/3	137/5	106/3
	Linseed cake, English (London)	204/9	202/-	199/-	202/4	184/4	102/-	194/2	160/8
	Cottonseed cake (London)	117/9	117/-	117/-	120/10	107/6	92/5	113/7	93/5
	Palm-kernel cake (Liverpool)	n q	n. q.	151/-	*151/-	133/5	121/-	*140/2	§122/5

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*, †, § See notes on page 849.

1) See note 5) on page 844. — 2) Quotations on last day of the month. — 3) Price per degree and hectolitre. — 4) Prices in Coudekerque

Groups	Description	Average							
		Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1937	July-Sept 1937	Agricultural year	
								1936-37	1935-36
	ITALY (Prices in lire per quintal)								
A I	†Wheat, soft (Milan)	138.00	138.00	138.00	126.35	121.25	101.50	123.75	111.90
	Wheat, hard (Catania)	147.00	147.00	154.00	139 85	129.65	126 35	134.45	109.60
	Oats (Milan)	101.50	101.50	102.70	107 25	* 90.65	84.85	* 99.35	* 94.40
	†Maize (Milan)	82.00	82.00	82.00	82.00	89 35	80.00	85 35	83.00
	Rice, Maratelli (Milan)	* 158.00	158.00	n. q.	155 50	157 90	132.55	151 10	152.20
	§Hemp, fibre (Milan)	544.00	544.00	544.00	544.00	540.00	420 00	* 544.00	502.50
	§Olive oil "Sopraffino locale" (Bari)	760 00	760.00	760.00	760.00	613.35	551.00	682 00	568.00
	§Wine, ordinary, 11°, hectol. (Bari)	68.75	65.00	65 00	55.00	50 00	71 65	51.25	57.10
A II	†Oxen live weight (Milan	447 50	* 435.00	435.00	428 65	536.00	254.65	380.65	284.90
	Lamb, dead weight (Rome)	916.00	816.00	719 00	696 00	860 00	739 35	714.10	* 641.05
	Pigs, live weight (Milan)	630.00	630.00	630.00	556 65	n. q.	415 65	* 511.80	* 409.00
	†Cheese, Parmigiano-Reggiano (Milan)	900.00	1,050.00	1,032.00	936.85	815 15	663 15	862.00	704.00
	Eggs, new laid, per 100 (Milan)	52.50	48 25	43.15	38.05	44 00	37.90	45.70	47.20
	Wool, Italian (Rome)	2,602.00	2,602.00	2,602.00	*2,333.50	2,065.00	1,372 65	*2,114.00	1,809.90
B I	Superphosphate of lime, 14-16 % (Milan)	24 75	22.95	22.35	22 60	19.15	19.75	20 85	19.15
	Chloride of potash (Milan)	2) 70.50	2) 68 60	2) 68.00	3) 68.00	57.50	42.75	* 57 85	51.30
	Nitrate of lime, 15-16 % (Milan)	88.30	86 80	86 65	84 60	79 40	77 50	81.25	76.75
	Sulphate of ammonia, 20-21 % (Milan)	84.90	82.95	82 60	81.75	78 40	75 75	79.50	75.55
	Cyanamide of calcium, 15-16 % (Milan)	68.85	65 45	64.55	63 60	58.55	55.45	60 75	55.70
	Copper sulphate (Genoa)	n q.	n. q	177 00	175 15	* 132.00	112 10	* 166 40	130.00
B II	Wheat-bran (Genoa)	52.90	47 75	43.90	43 15	43 30	59.60	45 05	51.80
	Rice-bran (Milan)	53 70	52.00	51.60	50 40	46 95	62.35	50.60	57.00
	Linseed cake (Milan)	85.50	85 50	85 50	83 30	79.20	71.20	83.95	78.00
	Groundnut cake (Milan)	55.00	55.00	55 00	55 00	71 50	58.65	65 30	68.10
	Rapeseed cake (Milan)	36 50	36 50	36 50	36.50	36.50	37.65	36.50	38.65
	NETHERLANDS (Prices in florins per quintal)								
A I	Wheat (Groningen)	9 30	10.22	10 17	9.98	10 73	11 72	9.93	10.99
	Rye (Groningen)	7 46	* 7 03	n. q.	* 8.41	* 7.60	6 75	* 8.12	* 7.09
	Barley (Groningen)	7.29	7.27	8.01	8 24	5 62	4 45	7.48	4.83
	Oats (Groningen)	5.87	6 24	7.04	7.24	6.48	5.70	7.07	6.01
	Peas (Rotterdam)	..	...	...	* 13 53	* 11.00	9.40	* 13.53	* 9.50
	Flax, fibre (Rotterdam)	. . .	...	. .	74.83	51.00	54.83	66 96	55.84
	§Potatoes (Amsterdam)	...	4 36	n. q.	3.57	4.13	3 75	3 66	3.80
A II	Beef, dead weight (Rotterdam)	...	...	...	75 83	61 33	49 17	66 75	50.62
	†Pigs, live weight (Rotterdam)	..	...	..	47.67	37 50	39 83	43.54	37.87
	†Butter for export (Leeuwarden)	83.50	78.25	76 62	71.33	59 75	49 08	66 10	53.25
	†Cheese, Edam 40 % (Alkmaar)	41 88	43 00	40 30	35 71	35 65	31.82	35.15	34.70
	Cheese, Gouda 45 % (Gouda)	56 50	57.50	51.20	43 43	43 43	40 83	44.00	43.60
	†Eggs, per 100 (Roermond)	...	...	...	2.86	2.94	3.03	3.39	3.19
B I	Basic slag 1)	0 102	0 102	0 101	0 104	0.105	0.088	0 115	* 0.090
	Superphosphate, 17 %	2 24	* 2.20	n q.	2 20	*n 1.72	1.76	* 2.05	* 1.76
	Kainite 1)	...	. .	...	0 111	0.096	0.078	* 0 106	0.095
	Nitrate of soda 15 ½ to 16 %	n q	* 6 05	5 94	6 22	5 90	5 99	6 00	* 6.03
	Sulphate of ammonia, 20 ½ %	5 20	5.16	4 86	5 28	4.99	4.92	5 09	5 09
B II	Maize (Rotterdam)	...	...	...	6 63	6.17	4 44	6 69	4 84
	Linseed cake, Dutch	8 77	8 66	8 33	8.57	7 23	5 14	8 08	5.93
	Coconut cake, Dutch	8.54	8 47	8 23	7.98	6.73	5.36	7 56	5.51
	Groundnut cake, Dutch	8.10	8 07	7 91	7.88	7 50	4 96	7 88	5.78
	POLAND (Prices in zlotys per quintal)								
A	Wheat (Warsaw)	31.07	30 30	29 11	31.32	21 76	16 78	27 14	19.91
	†Rye (Warsaw)	24.44	24.06	23.75	25 41	14.53	11.92	20.75	13.13
	†Barley (Warsaw)	* 25.50	n. q.	n q.	4) 26.70	19.02	* 15 53	* 24 20	* 15.90
	Oats (Warsaw)	22.30	22.36	27.21	23.98	15 11	15.24	19.11	15.14
A II	Oxen live weight (Warsaw)	76.50	75 25	74.20	74.05	65.72	64.33	68.20	63.20
	Pigs, live weight (Warsaw)	113.50	113.50	111 80	96.58	92 92	96 33	94 42	88.74
	Butter (Warsaw)	327.00	297.00	271.00	298.00	257.67	287.00	289.75	292.18
	†Eggs, new laid, per 100 (Warsaw)	8.58	6.79	6.75	5.63	5.69	6.47	7.36	7.25

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*, †, §: see notes on page 849.

1) Prices per unit of fertilizer material in 100 kg. — 2) Base 50/52 K^2O. — 3) June only, base 50/52 K^2O. — 4) April only.

POLAND (*continued*)

Groups	Description	Average Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1936	July-Sept. 1935	Agricultural year 1936-37	1935-36
B I	Superphosphate 1)	...	0.65	0.64	0.64	0.65	0.61	0.64	0.62
	Potash salts, 20 %	...	7.60	7.60	7.33	7.80	8.96	7.54	8.00
	Sulphate of ammonia	...	20.70	20.70	20.70	20.70	20.70	20.70	20.70
B II	Wheat-bran (Warsaw)	16.72	17.75	16.55	15 75	10.38	9.29	13.66	10.35
	Rye-bran (Warsaw)	16.06	16.62	16.97	16.78	9.24	8.19	13.42	9.34
	Linseed cake (Warsaw)	23.44	24.75	22.30	22.08	16.53	16.88	20.94	16.86
	Rapeseed cake (Warsaw)	20.25	20.50	17.50	17.26	13.69	12.25	16 78	13.73

SWEDEN (Prices in Swedish crowns per quintal)

Groups	Description	Average Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1936	July-Sept. 1935	Agricultural year 1936-37	1935-36
A I	Wheat (Stockholm)	19.65	* 18.75	n. q.	* 20.38	* 17.29	16.47	* 19.09	* 16.32
	Rye (Stockholm)	18.97	* 18.21	n. q.	* 18.89	* 16.67	15.07	* 18.15	* 15.11
	Barley (Stockholm)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 15.12	n. q.
	Oats (Stockholm)	n. q.	n. q.	n. q.	* 16.81	* 12.49	* 11.29	* 14 44	* 11.65
A II	Cows, live weight (Göteborg)	61 00	63.00	63.00	4) 57 00	61.33	56.33	57.33	57.58
	Pigs, live weight (Göteborg)	100.00	92.00	86.00	5) 80.67	86.00	83.67	87.00	88.25
	Butter (Malmö)	26500	265.00	253.00	250.00	217.33	216.33	238.08	215.33
	Eggs (Stockholm)	144.00	129.00	125.00	105 00	123.75	117.07	132.62	124.17
B I	Superphosphate, 20 %	7.00	7.00	7.00	7.00	7.00	7.72	7.00	7.36
	Potash salts, 20 %	...	...	..	...	7.52	6.47	...	7.53
	Nitrate of soda	n q.	n. q	n. q.	n. q.	n. q.	n. q.	n. q.	* 17.72
	Calcium cyanamide	n q.	n. q.	n q	n. q	n. q.	n. q.	n. q.	* 16.72
B II	Maize, Plata.	16.62	16.30	15 97	16 05	16.83	15.25	16 29	15.25
	Wheat-bran	14.07	13.85	13.62	14 54	13.89	12.43	14.39	13.18
	Groundnut cake	19.86	19.84	19.16	19.09	19.79	17.57	19.91	18.20
	Cottonseed cake	n. q.	n. q.	n. q.	* 17.75	n. q.	16.00	* 18.17	* 16.19
	Soya meal	19.64	19 65	18.71	18.60	19.34	16.86	19.14	17.51

CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)

Groups	Description	Average Sept. 1937	August 1937	July 1937	April-June 1937	July-Sept. 1936	July-Sept. 1935	Agricultural year 1936-37	1935-36
A I	Wheat (Prague) 2)	162.00	161.50	n. q.	173.00	* 161.25	171 75	* 166.35	170.95
	Rye (Prague) 2)	135.50	135.00	n. q	136.35	* 125.15	132.65	* 130.20	133.05
	Barley, malting (Prague) 2)	131.00	130.00	n. q	134.00	* 125.75	131.65	* 135.00	* 131.70
	Oats (Prague) 2)	119.50	119.00	n. q	122.50	* 112.25	118.50	* 117.10	118.25
	Potatoes, edible (Prague)	29.00	41.00	66.50	24.50	38.85	90.85	28.85	54.35
	Hops (Zatec)	1,990.00	1,225.00	1,375.00	1,710 00	2,946.65	3,355.00	1,868.65	2,969.40
A II	Beef, dead weight (Prague)	1,015.00	1,025.00	875 00	1,083.35	1,095.65	841.65	1,084.35	914.50
	Veal, dead weight (Prague)	800.00	775.00	812.00	850.00	954.15	783.35	898.95	839.50
	Pork, dead weight (Prague)	925.00	975.00	862.00	862.35	1,062.50	1,039.00	967.20	925.00
	Butter(Prague)	1,975.00	1,900.00	1,850.00	1,766.65	1,683 35	1,775.00	1,645.85	1,765.85
	Eggs, new laid per 100 (Prague)	55.00	50.83	49.20	48.05	51.65	50.80	56.65	55.40
B I	Basic slag, 15 %	35.75	35.75	35.75	35.45	34.85	34.85	35.15	34.85
	Superphosphate, 16 to 18 %	52.90	52.90	52.90	52.00	48.50	48.50	49.65	48.50
	Kainite, 14 %	24.45	24.45	22.35	23.55	22.30	19.10	22.80	20.95
	Nitrate of soda	n. q.	n. q.	n. q.	138.00	n q.	n. q.	* 138.00	* 130.00
	Sulphate of ammonia, 20 ⅛ %	123.40	123.40	118.40	123.40	121.75	123.40	122.00	122.40
B II	Maize, imported	108.50	108.50	108.50	108.50	106.00	107.35	107.30	107.30
	Wheat-bran (Prague) 3)	105.00	105.00	105.00	105.00	105.00	99.00	105.00	103.50
	Rye-bran (Prague) 3)	103.00	103.00	103.00	103.00	103.00	97.00	103.00	101.50
	Crushed soya (Prague, delivered Lovosice) 3)	142.00	142.00	142.00	142.00	142.00	143.00	142.00	142.25
	Rapeseed cake (Prague, delivered Lovosice) 3)	117.50	117.50	117.50	117.50	117.50	118.50	117.50	117.75
	Linseed cake (Prague, delivered Lovosice) 3)	139.50	139.50	139.50	139.50	139.50	140.50	139.50	139.75
	Groundnut cake (Prague, delivered Strekov) 3)	150.00	150.00	150.00	150.00	150.00	151.00	150.00	150.25

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1) Prices per unit of fertilizer material in 100 kg. — 2) Producers' fixed prices, f. o. r. Prague. — 3) Wholesalers' selling prices. — 4) June: 58.00. — 5) June: 81.00.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL (*)

DESCRIPTION	Sept. 1937	August 1937	July 1937	June 1937	May 1937	April 1937	Sept. 1936	Sept. 1935	Year 1936	Year 1935
Wheat.										
Budapest: Tisza	12.47	12.44	12.58	11.97	12.27	12.53	9.67	9.34	9.75	9.71
Winnipeg: No. 1 Manitoba	14.94	14.86	16.42	13.81	14.66	15.52	11.72	10.15	10.57	9.53
Chicago: No 2 Hard Winter	12.61	13.07	14.59	14.02	14.68	15.66	13.52	13.13	12.79	12.08
Buenos-Aires: Barletta	14.71	14.22	14.43	13.25	13.87	13.93	11.40	8.74	10.86	7.57
Berlin: Home grown	1) 24.82	1) 24.58	25.68	25.68	25.68	25.68	24.21	24.25	25.48	25.14
Hamburg (c. i. f.):										
Manitoba No. 1	17.78	17.77	18.70	16.33	17.28	18.09	14.00	12.20	12.91	11.44
Barusso	16.49	16.66	16.82	16.15	16.80	17.02	13.18	9.90	12.18	8.74
Antwerp:										
No. 1 Manitoba (Atlantic)	17.10	17.20	18.27	15.92	16.94	18.43	13.19	11.64	12.60	11.23
Barusso	2) 16.32	2) 16.56	2) 16.77	15.57	16.16	16.96	13.26	9.57	12.12	8.58
Paris: Home grown	1) 19.51	1) 20.66	18.29	21.19	21.08	20.96	29.23	17.79	21.51	16.56
Liverpool and London (c. i. f.):										
French (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 9.21	* 7.08
No 1 Manitoba (Pacific)	3) 17.63	3) 16.98	3) 18.20	16.09	17.05	17.94	13.57	11.82	12.52	11.10
No 3 Manitoba (Pacific)	4) 16.32	4) 15.99	4) 17.62	15.34	16.12	16.93	13.08	10.93	11.98	10.16
No 2 Hard Winter	15.3	15.38	16.69	15.13	n. q.	16.01	n. q.	n. q.	n. q.	n. q.
Rosafé	5) 14.09	5) 14.30	5) 14.92	n. q.	15.68	15.97	12.14	10.10	* 12.51	8.64
Choice White Karachi	14.95	14.56	15.56	14.61	15.68	16.04	13.63	10.70	12.90	n. q.
West Australian (cargoes)	15.40	15.15	16.17	14,98	16.18	16.26	14.05	10.79	12.28	9.61
Milan: Home grown, soft	22.22	22.22	22.22	6) 21.10	19.97	19.97	29.66	27.38	26.71	26.63
Rye.										
Berlin: Home grown	1) 22.72	1) 22.72	1) 22.35	21.11	21.11	21.11	19.64	19.67	20.68	20.29
Hamburg Plata	n. q.	n. q.	16.33	16.19	16.32	15.95	8.24	6.07	7.81	6.31
Budapest Home grown	11.54	11.60	11.69	12.47	12.47	12.28	7.56	8.25	8,07	7.65
Warsaw. Home grown	14.21	13.99	13.81	15.57	14.38	14.37	8.95	7.48	8.86	7.77
Minneapolis: No. 2	9.34	9.40	11.10	11.88	13.17	13.51	10.25	5.72	8.53	6.72
Barley.										
Braila: Average quality	1) 7.62	1) 7.51	1) 8.22	8.20	7.93	7.87	5.28	6.12	5.83	6.67
Prague: Malting, average quality	1) 14.08	1) 13.97	n. q.	14.40	14.40	14.40	16.03	16.19	* 16.43	* 16.85
Winnipeg: No 4 Western	8.03	7.85	9.51	8.47	9.37	9.95	8.18	4.70	6.60	5.11
Minneapolis: No. 2 Feeding	7.63	7.52	8.47	8.38	9.74	11.04	10.88	5.72	8.00	7.32
Berlin: Home grown, fodder	1) 20.62	1) 20.38	1) 20.13	22.22	21.98	21.73	20.01	20.04	20.99	20.33
Antwerp: Danubian	10.88	11.18	11.61	11.66	11.74	12.01	9.61	7.49	8.93	7.97
Liverpool and London (c. i. f.):										
No. 3 Canadian Western	11.33	11.01	12.61	11.82	12.56	12.61	10.42	7.06	* 8.98	7.88
Plata	5) 10.68	5) 10.72	* 11.51	11.45	11.89	12.25	8.03	6.41	7.82	6.68
Iranian	1) 10.79	1) 10.12	10.89	10.44	10.47	11.23	7.93	6.61	7.58	6.56
Oats.										
Winnipeg: No 2 White	10.22	10.12	12.55	11.19	11.19	11.49	8.96	7.18	7.97	7.67
Chicago: No 2 White	7.01	6.64	9.60	10.44	11.47	11.57	9.69	6.97	8.12	8.72
Buenos-Aires: Current quality	6.18	6.14	6.41	6.31	6.86	6.87	6.03	7.25	6.23	* 5.74
Berlin: Home grown	1) 19.88	1) 19.51	21.73	21.73	21.48	21.23	19.51	19.55	21.48	20.44
Paris: Home grown	14.12	13.94	13.54	16.64	16.74	16.61	19.31	9.94	16.52	9.62
London and Liverpool (c. i. f.): Plata	5) 8.73	5) 8.61	9.20	9.15	9.36	9.38	7.88	8.56	7.60	7.15

(*) The gold franc adopted is that of the former Latin Monetary Union. Up to the end of September 1936, prices in gold francs were obtained by converting original prices into Swiss francs, since they could still be regarded as gold francs. After the devaluation of the Swiss franc (28 September 1936), original prices were converted into American dollars, and multiplied by 1 061, which can be considered as the coefficient existing between the current dollar and the former franc of the Latin Monetary Union. In cases where the difference between the rates of exchange of the national currency considered, and the parity with the dollar did not, during a given month, reach 2½ %, the monthly average has been converted on the basis of parity. In other cases the average rate of exchange for the month has been utilized. — 1) New crop. — 2) "Bahia" quality. — 3) Nº 1 Manitoba, Atlantic. — 4) Nº 3 Manitoba, Atlantic. — 5) New crop, shipping Jan.-Feb. — 6) On and after 12 June, new crop.

Description	Sept	Aug	July	June	May	April	Sept	Sept	Year	
	1937	1937	1937	1937	1937	1937	1936	1935	1936	1935
Maize.										
Braila Homegrown	n. q.	n q	7 15	6 95	6 59	6 62	6 03	6 92	5 68	6 55
Chicago. No 3 Yellow	12 65	12 62	14 37	14 58	16 37	16 06	13 73	10 07	10 18	9.88
* Buenos Aires Yellow Plata	6 68	6.53	6 65	6 33	6 69	6.55	6 19	4.58	5.32	4.74
Liverpool and London (c. i f)										
Yellow Plata	9 40	9 15	9 25	8.83	9 16	9.26	8 06	5 55	6.81	5.82
No 2 White African	9 32	8 93	9 19	9 45	9 65	n. q.	n q	5 72	n. q.	* 6.26
Milan. Homegrown	13 21	13 21	13 21	13 21	13 21	13 21	20 74	20 16	19.16	18.98
Rice.										
Milan· Originario	21 10	21 10	20 87	20 61	20 61	20 55	30 14	33 65	28.13	30.90
Rangoon No 2 Burma	9 28	9 13	8 59	8 44	8 57	8 68	8 56	8 83	8 23	8.50
Saigon No 1 Round white	10 21	10 32	8 99	8 86	8 67	8 78	10 60	8 93	9 09	8.49
London (c i f)										
No 2 Burma	14 67	14 45	13 37	13 19	13 29	13 26	12 31	12 06	11 71	11.41
No 1 Saigon	15 14	14 76	13,24	13 23	13 35	13 45	13 58	11 75	12 02	11 05
Tokyo: Chumai	...	19 71	...	...	20 26	19 50	19 82	19 33	18 71	18.12
Cotton.										
New Orleans· Middling	59 93	69 78	81 59	84 76	88 54	93 94	82 96	77 52	81 16	80 48
Bombay (Futures). M g Broach, f g	59 65	61 17	66 62	74 11	74 56	76 12	71 22	64 52	68.53	73 30
Alexandria· Sakellaridis, f g f	110 48	121 49	130 64	131 43	134 44	148 53	123 31	99 09	111 62	106 06
Liverpool										
Middling American	74 65	82.38	93 23	97 96	101 57	104 75	97 61	87.72	93 70	93 03
M. g Broach, f g	n. 62 26	n 69 91	n 78 30	n. 82 42	n. 83 34	n. 83 67	78 80	72.40	75 60	79 15
Sakellaridis, f. g f	122 15	129 17	135 66	146 25	157 22	166 09	147 62	115 42	139.23	119 93
Beef.										
Berlin· Domestic (live weight)	106 21	106 21	103.74	103 74	103 74	101 27	103 74	103 93	103 83	101 00
Paris· Domestic (dead weight)	93 58	101 33	106 69	123 71	123 61	113 41	129 51	102 11	112 76	97.03
London· Domestic (dead weight)	103 14	120 82	119 50	119 67	115 21	100 78	96 62	* 89 19	93 83	90 74
Mutton.										
Paris: Domestic (dead weight)	120 53	122 10	135 22	157 10	161 53	166 34	199 75	206 86	186.13	204.71
London: Domestic (dead weight)	124 47	132 21	141 31	156 95	157 38	155 05	137 14	* 110 07	118.40	120 27
Pork.										
Denmark: Domestic (live weight)	126 89	126 25	115 84	109.22	117 43	115 25	121.88	103 55	115.60	108.89
Rotterdam: Domestic (live weight)	...	...	...	79.94	80 71	79 60	82.28	92 69	72.91	80 46
Berlin: Domestic (live weight)	129.92	132.14	127 95	124 73	121 03	121 03	124 73	127.44	124.84	119 29
Paris: Domestic (live weight)	75.57	80 33	84 79	82 84	82 68	80 83	117.94	82.42	103.94	75.97
London: Domestic (dead weight)	123 60	117.32	106.42	102.32	110 86	112.41	111,31	97.45	* 111.31	104.21

DESCRIPTION	Sept 1937	August 1937	July 1937	June 1937	May 1937	April 1937	Sept 1936	Sept 1935	Year 1936	Year 1935
Butter.										
Copenhagen Danish	164 99	153 14	142 97	132 82	126 37	131 91	152 70	152 28	140 86	129.78
Leeuwarden Dutch	140 94	132 09	129 20	124 54	118 97	116 05	119 77	120 81	112 47	101.80
Hamburg Schleswig Holstein	321 10	321 10	321 10	321 10	321 10	321 10	321 10	321 68	321 38	321.38
London										
Danish	200 47	189 89	179 58	170 35	164 34	169 71	190 97	188 33	178 59	167.62
Argentine	n q	n q	n q	n q	n q	141 53	150 77	n. q	* 145 51	* 123.10
Australian, salted	174 10	173 12	168 24	161 06	157 39	153 59	163 11	163 84	149 77	133.27
New Zealand, salted	174 85	174 63	170 23	163 16	159 13	154 45	163 49	164 46	150 92	135.38
Cheese.										
Milan Parmigiano-Reggiano	1) 144 94	169 09	166 19	152 99	151 78	147 83	189 30	172 70	171 75	163 98
Alkmaar Edam 40 +	70.69	72 59	67 96	66 68	58 21	55 14	67 70	84 36	69 62	61.84
Kempten Emmenthal variety	197 60	197 60	197 60	197 60	197 60	197 60	197 60	190 54	197 77	189.68
London										
English Cheddar	1) 134 31	1) 132 85	n q	n q	n q	125 62	120 23	95 22	119 56	115.33
Canadian	1) 104 59	1) 105 95	118 51	117 45	115 15	111 01	107 38	82 17	99 41	89.52
New Zealand	94 39	104 83	108 92	110 26	107 82	100 30	104 33	81 67	90 95	72.52
Eggs (per 100).										
Denmark Danish (per quintal)	94 40	76 50	65 79	46 52	49 67	46 34	88 99	83 65	73 46	72.09
Roermond Dutch, for export				4 83	4 64	4 93	6 44	6 89	6 24	6.45
Warsaw Polish, average quality	5 07	3 95	3 92	3 60	3 06	3 14	3 69	3 90	4 02	4 21
Berlin German, big, special quality	13 89	13 89	11 42	11 42	11 42	12 78	14 82	14 23	13 31	13 44
London										
Danish	8 90	7 81	n q	6 37	5 84	5 57	8 47	8 13	8 05	7.82
Dutch	9 79	8 71	8 31	7 55	6 94	6 59	9 67	8 97	8 77	8.30

1) New make

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U S DOLLAR 1)

NATIONAL CURRENCIES	Parity (1)	Actual Exchange Rates					Percentage deviation from parity with U S dollar premium (+) or discount (—)				
		15 Oct 1937	8 Oct 1937	1 Oct 1937	24 Sept 1937	17 Sept 1937	15 Oct 1937	8 Oct 1937	1 Oct 1937	24 Sept 1937	17 Sept 1937
Germany reichsmark	40 332	40 160	40 163	40 123	40 114	40 116	— 0 4	— 0 4	— 0 5	— 0 5	— 0 5
Argentina paper peso	71 959	n 33 067	n 33 024	n 33 006	n 32 987	n 33 062	— 54 0	— 54 1	— 54 1	— 54 2	— 54 1
Belgium belga	2) 23 542 3) 16 950	16 846	16 851	16 837	16 826	16 829	— 28 4 — 0 6	— 28 4 — 0 6	— 28 5 — 0 7	— 28 5 — 0 7	— 28 5 — 0 7
Canada dollar	100.000	100 043	100 019	99 984	99 985	99 984	0 0	0 0	0 0	0 0	0 0
Denmark crown	45 374	22 142	22 113	22 108	22 079	22 143	— 51 2	— 51 3	— 51 3	— 51 3	— 51 2
Spain peseta	32 669	n 6 231	n 6 325	n 6 312	n 6 358	n 6 493	— 80 9	— 80 6	— 80 7	— 80 5	— 80 1
France franc 4)	6 633	3 365	3 295	3 424	3 419	3 382	— 49 3	— 50 3	— 48 4	— 48 5	— 49 0
Great Britain £ sterling 5)	8 2397	4 9611	4 9537	4 9527	4 9466	4 9623	— 39 8	— 39 9	— 39 9	— 40 0	— 39 8
Hungary pengö	29 612	n 19 742	n. 19 742	n 19 737	n 19 750	n 19 750	— 33 3	— 33 3	— 33 3	— 33 3	— 33 3
India rupee	61 798	37 447	37 403	37 385	37 347	37 438	— 39 4	— 39 5	— 39 5	— 39 6	— 39 4
Italy lira	2) 8 911 6) 5.263	5 261	5 261	5 260	5 260	5 260	— 41 0 0 0	— 41 0 0 0	— 41 0 — 0 1	— 41 0 — 0 1	— 41 0 - 0 1
Japan yen	84 396	28 873	28 850	28 821	28 822	28 905	— 65 8	— 65 8	— 65 9	— 65 8	— 65 8
Netherlands florin	68 057	55 276	55 283	55 282	55 279	55 110	— 18 8	— 18 8	— 18 8	— 18 8	— 19 0
Poland zloty	18.994	18 887	18 887	18 900	18 896	18 890	— 0 6	— 0 6	— 0 5	— 0 5	— 0 5
Romania leu	1 013	n 0 735	n. 0 728	n 0 735	n 0 728	n 0 728	— 27 4	— 28 1	— 27 4	— 28 1	— 28 1
Sweden crown	45.374	25 574	25 539	25 533	25 500	25 575	— 43 6	— 43 7	— 43 7	— 43 8	— 43 6
Switzerland franc	32.669	23 003	22 991	22 969	22 962	22 966	— 29 6	— 29 6	— 29 7	— 29 7	— 29 7
Czechoslovakia crown	2) 5.016 7) 3.512	3 500	3 498	3 499	3 496	3 495	— 30 2 — 0 3	— 30 3 — 0 4	— 30 2 — 0 4	— 30 3 — 0 5	— 30 3 — 0 5

1) Parities and current rates are both expressed in U S cents per unit of the foreign currency (The £ sterling is expressed in dollars) The dollar contains 0 8886706 grams of fine gold i e 40 9 % less than formerly — 2) Former parity — 3) New parity as from 31 March 1935 — 4) 1 Indochinese piastre = 10 francs the actual rates vary only slightly from this — 5) Quotations for the Egyptian pound are omitted its relationship with the £ sterling being fixed (97 ½ piastres = 1 £ sterling). — 6) New parity as from 5 Oct 1936 — 7) New parity as from 10 Oct 1936

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural products and other price-indices of interest to the farmer, as published in the different countries, are given in the following pages.

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

COUNTRIES	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index numbers of prices of agricultural products	Index-numbers of wholesale prices in general
	Index-numbers for September 1937			
	in comparison with August 1937		in comparison with September 1936	
Germany (products sold by farmers)	— 2.9	—	0.0	—
Germany (wholesale prices)	— 0.9	— 0.5	— 0.5	+ 1.7
England and Wales	+ 4.4	— 1.1	+ 6.8	+ 14.3
Argentina	+ 2.4	—	+ 19.5	—
Canada	+ 1.4	— 0.7	+ 15.7	+ 11.3
United States: Bureau of Agric. Economics	— 4.1	—	— 4.8	—
United-States: Bureau of Labor	— 0.6	— 0.1	+ 2.3	+ 7.1
Finland	+ 1.1	+ 1.0	+ 14.1	+ 13.0
Hungary	+ 3.7	+ 2.1	+ 15.3	+ 10.3
New Zealand	+ 0.7	—	+ 12.4	—
Netherlands	— 1.5	— 0.9	+ 22.6	+ 22.8
Poland	+ 0.7	0.0	+ 17.9	+ 9.0
Sweden	0.0	—	+ 3.2	—
	Index-numbers for August 1937			
	in comparison with July 1937		in comparison with August 1936	
Belgium	+ 0.7	—	+ 15.1	—
United States: Bureau of Labor	— 3.3	— 0.5	+ 3.2	+ 7.2
Lithuania	— 2.1	0.0	+ 23.7	+ 15.6
Yugoslavia: vegetable production	+ 4.2	+ 2.2	+ 22.5	+ 14.1
Yugoslavia: animal production	+ 0.9		+ 5.6	

Quarterly general index-numbers of prices of agricultural products.

(Base: first quarter of 1929 = 100).

COUNTRIES	1935 3rd Quarter	1935 4th Quarter	1936 1st Quarter	1936 2nd Quarter	1936 3rd Quarter	1936 4th Quarter	1937 1st Quarter	1937 2nd Quarter	1937 3rd Quarter
Germany (products sold by farmers)	76.1	75.8	76.3	79.3	76.8	74.6	74.8	77.8	77.1
Germany (wholesale prices)	77.9	78.6	78.7	79.1	79.5	77.8	77.8	78.3	79.5
England and Wales	85.4	83.3	85.4	85.4	87.5	89.6	92.4	95.8	95.1
Argentina	69.0	74.4	78.2	78.8	86.8	87.5	95.0	100.5	102.7
Belgium 1)	100.5	110.1	108.0	102.1	104.2	113.2	111.6	109.9	4) 118.8
Canada	64.5	67.3	67.7	66.6	73.5	80.8	90.2	90.1	86.4
Irish Free State	57.0	60.7	58.3	63.2	65.0	69.3	67.4	75.3	...
United States: Bur. of Agr. Economics	71.9	74.7	73.3	71.9	82.9	83.6	88.4	87.0	83.6
United States: Bur. of Labor	74.1	73.5	73.5	72.2	78.2	80.9	87.0	85.0	82.2
Finland	72.0	72.6	75.1	72.0	73.5	75.7	82.2	81.3	82.2
Hungary	59.6	64.8	61.0	53.6	52.9	56.6	59.6	58.8	60.3
Lithuania	33.2	35.6	36.2	36.9	38.9	43.0	46.6	47.4	4) 47.3
New Zealand 2)	108.4	120.4	120.6	120.8	129.4	131.9	137.2	143.9	145.1
Netherlands	55.7	54.6	53.6	55.7	57.9	57.9	62.1	66.4	70.7
Poland 3)	46.1	49.7	45.4	48.2	47.7	51.5	54.1	57.8	58.9
Sweden 2)	106.9	108.5	106.6	106.0	117.7	118.3	121.4	120.2	122.1
Yugoslavia: vegetable production	50.4	60.7	60.3	51.4	44.6	48.5	49.6	50.2	4) 53.6
Yugoslavia: animal production	50.6	54.5	51.9	53.1	58.9	60.9	59.4	59.4	4) 61.6

1) Base: 1st Quarter of 1932 = 100. — 2) Base: 1st quarter of 1931 = 100. — 3) First month of each quarter compared with January 1929. — 4) Average of July and August only.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	Sept 1937	August 1937	July 1937	June 1937	May 1937	April 1937	Sept. 1936	Sept 1935	Year	
									1936-37 6)	1935-36 6)
Germany 2)										
(Statistisches Reichsamt) Average for corresponding months 1909-10/1913-14 = 100										
Cereals	107	110	103	102	101	103	100	99	105	104
Edible potatoes	110	128	137	112	122	116	110	113	115	119
Plant products	108	115	117	103	107	107	102	102	107	107
Meat animals	93	94	95	97	96	95	95	94	94	96
Dairy and poultry products	104	108	113	117	113	109	100	104	106	106
Livestock products	96	99	101	104	102	99	96	97	98	99
Total agricultural products	100	103	104	104	103	101	100	98	100	101
Germany 3)									1936	1935
(Statistisches Reichsamt) 1913 = 100										
Foodstuffs of plant origin	114.5	116.9	118.2	115.7	115.5	114.5	111.4	110.7	114.1	113.4
Livestock	89.9	90.7	88.9	87.4	86.2	85.7	92.6	90.4	89.4	84.2
Livestock products	111.9	111.9	107.8	107.8	107.8	109.4	111.7	110.0	109.4	107.1
Feedingstuffs	104.4	104.6	107.0	108.3	107.7	107.3	103.5	103.4	107.5	104.6
Total agricultural products	105.4	106.4	105.7	104.6	104.1	103.9	105.9	103.7	104.9	102.2
Fertilizers	54.6	54.0	52.9	55.8	57.1	60.6	65.2	66.7	66.8	66.8
Agricultural dead stock	112.7	112.7	112.7	112.7	112.7	112.8	111.8	111.1	111.6	111.1
Finished manufacture ('Konsumgüter')	134.9	133.6	133.3	132.9	132.5	131.8	128.4	123.8	127.3	124.0
Wholesale products in general	106.2	106.7	106.4	106.1	105.9	105.8	104.4	102.3	104.1	101.8
England and Wales										
(Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100										
Agricultural products 4)	142	136	134	134	136	143	133	128	126	123
Feeding stuffs	114	119	122	119	119	124	99	81	93	87
Fertilizers	92	92	91	91	91	91	87	87	89	88
Wholesale products in general 5)	121.2	122.5	124.2	122.7	124.4	122.7	106.0	100.1	104.4	99.5
Argentina										
(Banco Central de la República Argentina) 1926 = 100										
Cereals and linseed	103.8	101.6	103.2	97.7	102.4	102.6	88.3	70.7	82.6	67.2
Meat	103.9	97.3	95.7	92.6	86.3	83.4	96.7	91.5	91.0	84.0
Hides and skins	120.3	122.7	125.8	118.1	123.9	139.4	89.0	80.0	91.0	80.5
Wool	151.4	147.1	143.3	144.9	153.9	160.4	109.1	79.9	107.6	74.6
Dairy products	123.7	110.2	98.2	91.7	85.8	87.3	90.8	120.2	85.5	88.8
Forest products	98.8	100.2	100.2	98.7	97.8	97.8	95.8	91.5	96.3	92.2
Total agricultural products	108.9	106.3	107.0	102.4	105.7	107.1	91.1	76.5	86.6	72.1

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1) For an explanation of the method of calculating the index numbers reference should be made to the Institute's publication *Index numbers of Prices of Agricultural Products and other Price indices of interest to the farmer* (Rome 1930) and to the *Crop Report*, January 1932, pages 77 to 79 July 1932 page 502 March 1934 page 231 December 1934 page 996 — 2) Index-numbers of products sold by farmers — 3) Index numbers of wholesale prices 4) Revised index numbers due to the Wheat Act payments as from August 1932 and the Cattle Emergency Act payments as from September 1934 — 5) Calculated by the *Statist*, reduced to base year 1913 = 100 — 6) Agricultural year 1 July to 30 June

Description	Sept. 1937	August 1937	July 1937	June 1937	May 1937	April 1937	Sept. 1936	Sept. 1935	Year	
									1936	1935
Belgium (Belgische Boerenbond Boerenbond belge) Average of corresponding months 1909-14 = 100.										
Field products	...	579	567	543	576	594	471	447	508	438
Livestock products	...	637	637	604	559	547	584	582	576	532
Total agricultural products	...	619	615	585	565	562	548	540	555	502
Rent	...	650	650	650	645	645	610	560	605	551
Agricultural wages	...	855	855	855	850	845	790	735	778	737
Fertilizers	...	452	447	433	433	431	438	405	427	394
Feedingstuffs	...	604	596	601	573	601	565	446	513	444
Total production expenses (*included those not specified*)	...	738	736	735	727	731	705	634	689	630
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	84.8	84.6	97.7	85.1	89.0	94.4	74.2	59.1	65.8	57.1
Livestock and livestock products	88.4	85.5	83.9	81.4	85.7	86.3	74.7	75.5	75.3	73.9
Total Canadian farm products	86.1	84.9	92.5	83.7	87.8	91.4	74.4	65.2	69.4	63.4
Fertilizers	74.5	74.5	74.5	74.5	74.5	74.5	74.3	75.8	74.5	75.8
Consumers' goods (other than foodstuffs, beverages and tobacco)	79.0	79.1	79.0	78.5	78.2	77.7	76.5	75.0	75.5	75.7
Wholesale products in general	85.0	85.6	87.5	84.6	85.1	86.1	76.4	72.4	74.6	72.1
Irish Free State (Department of Industry and Commerce) Average 1911-1913 = 100.										
Agricultural products in general	...	...	110.5	107.9	106.5	103.6	91.8	80.6	90.6	83.0
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100										
Cereals	111	119	139	139	149	154	130	97	108	103
Cotton and cottonseed	74	90	106	107	112	117	106	90	100	101
Fruits	121	123	145	157	152	142	105	82	100	91
Truck crops (market garden crops)	117	104	96	124	139	127	153	101	113	127
Meat animals	144	151	144	137	133	130	123	131	121	117
Dairy products	123	119	116	113	116	120	128	102	119	108
Chickens and eggs	119	109	102	95	96	104	119	126	115	117
Miscellaneous	115	128	113	119	133	138	141	96	122	97
Total agricultural products	118	123	125	124	128	130	124	107	114	108
Commodities purchased 1)	130	132	133	133	134	134	127	123	124	125
Agricultural wages 1)	126	—	123	—	—	112	2) 110	3) 102	106	95
United States (Bureau of Labor) 1926 = 100.										
Cereals	91.9	92.0	105.2	105.7	113.9	119.2	102.0	83.5	88.1	82.4
Livestock and poultry	106.7	108.2	105.0	98.3	95.9	93.6	83.8	92.0	84.8	84.9
Other farm products	71.2	71.4	75.1	77.4	79.0	83.4	78.6	70.4	76.0	73.4
Total agricultural products	85.9	86.4	89.3	88.5	89.8	92.2	84.0	79.5	80.9	78.7
Agricultural implements	94.2	94.2	94.2	94.1	93.8	92.1	94.2	93.7	94.1	93.7
Fertilizer materials	71.8	71.7	71.3	70.5	70.6	70.7	67.6	67.2	65.9	66.3
Mixed fertilizers	74.8	74.8	74.2	72.3	72.2	72.0	69.4	67.8	68.3	70.6
Cattle feed	81.2	82.9	116.5	116.9	139.9	146.8	107.5	67.9	94.0	88.4
Non-agricultural commodities	87.6	87.6	87.5	86.8	86.7	86.9	80.9	80.8	80.7	80.2
Wholesale products in general	87.4	87.5	87.9	87.2	87.4	88.0	81.6	80.7	80.8	80.0

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1) 1910-1914 = 100 — 2) October.

DESCRIPTION	Sept. 1937	August 1937	July 1937	June 1937	May 1937	April 1937	Sept. 1936	Sept. 1935	Year 1936	Year 1935
Finland (Central Bureau of Statistics) 1926 = 100.										
Cereals	103	101	106	112	116	117	89	77	91	80
Potatoes	69	77	83	59	65	71	59	65	74	75
Fodder	70	67	67	70	74	75	64	59	64	62
Meat	86	89	87	86	83	79	80	77	80	75
Dairy products	95	92	85	81	83	85	81	85	82	83
Total agricultural products	89	88	87	86	87	88	78	77	79	76
Wholesale products in general	104	103	103	103	104	103	92	91	92	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	83	80	80	78	79	79	72	82	—	—
Wholesale products in general	96	94	94	94	95	94	87	92	—	—
Lithuania (Lietuvos Bankas) 1926-29 = 100.										
Cereals	...	46	50	49	48	48	37	37	37	39
Cattle, fowls	...	51	50	50	51	50	47	28	40	30
Leather, hides, wool	...	60	59	59	62	62	53	37	50	38
Meat, dairy products and eggs	...	42	42	41	42	41	39	32	38	35
Total agricultural products	...	47	48	47	48	47	41	33	39	35
Wholesale products in general	...	52	52	52	52	52	47	44	45	45
New Zealand (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	119.1	113.6	113.9	112.6	108.3	97.6	122.6	97.6	105.6	91.3
Meat	159.3	160.4	164.3	163.4	164.5	164.5	156.5	151.0	161.5	157.6
Wool	175.3	175.3	169 7	180.9	190.8	184.6	105.3	80,4	111.5	82.2
Other pastoral products	151.0	167.2	151.6	153.1	151.8	145.1	123.7	107.9	123.6	96.7
All pastoral and dairy products	144.4	143.4	142.5	144.1	144.5	138.1	128.7	108.7	122.9	107.2
Field products	139.1	139.8	129.3	130.6	138.4	134.3	118.4	125.4	124.2	126.0
Total agricultural products	144.3	143.3	142.1	143.7	144.3	138.0	128.4	109.2	123.9	108.8
Norway (Kgl. Selskap for Norges Vel) Average 1909-14 = 100.									1936-37 1)	1935-36 1)
Cereals	172	175	173	172	172	171	153	142	154	144
Potatoes	171	203	227	188	134	142	97	132	132	165
Pork	129	126	123	108	103	102	115	113	110	109
Other meat	194	207	206	185	165	154	150	148	148	146
Dairy products	167	161	158	156	153	153	135	140	139	139
Eggs	142	120	109	98	96	101	127	103	113	102
Concentrated feedingstuffs	154	154	152	153	151	148	130	126	130	123
Maize	148	148	145	146	139	136	134	116	130	113
Fertilizers	89	89	90	90	90	90	84	83	87	82

1) Agricultural year: 1 April-31 March.

SPECIFICATION	Sept. 1937	August 1937	July 1937	June 1937	May 1937	April 1937	Sept. 1936	Sept. 1935	Year	
Netherlands									1936-37 2)	1935-36 2)
(Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	63	65	64	61	62	61	57	51	58	50
Livestock products	65	66	66	63	63	64	52	50	57	51
Total agricultural products	65	66	66	62	62	63	53	51	57	51
Agricultural wages	68	68	68	68	68	68	68	69	68	69
Wholesale products in general 1)	76.9	77.6	77.5	76.3	76.7	77.1	4) 62.6	61.8	3) 63.8	3) 61.5
Poland									1936	1935
(Central Bureau of Statistics) 1928 = 100.										
Raw plant products	52.5	53.1	56.9	61.6	55.8	54.2	37.2	32.5	38.1	33.9
Meat animals	46.8	46.4	47.9	42.3	41.9	43.7	40.7	42.1	38.7	35.5
Dairy products and eggs	51.4	46.8	43.4	43.8	47.0	47.6	39.1	43.3	40.4	41.2
Products directly sold by farmers	50.4	49.7	51.4	51.9	49.6	49.5	39.7	37.7	38.7	35.8
Flour and groats	54.4	55.7	54.3	60.2	57.5	56.7	44.0	35.8	41.2	36.7
Meat and lard-fat	52.3	50.7	50.2	46.7	47.6	47.8	47.6	50.2	44.3	40.8
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	79.4	71.5	79.2
Products of agricultural industries	59.2	59.1	58.5	58.9	58.6	58.4	54.2	55.1	52.2	52.0
Total agricultural products	54.7	54.3	54.9	55.4	54.0	53.9	46.4	46.3	45.4	43.8
Commodities purchased 2)	66.3	66.3	66.5	66.1	66.3	66.4	64.9	66.2	64.6	66.3
Wholesale products in general 2)	59.6	59.6	60.0	60.3	59.9	60.1	54.7	54.1	54.0	53.0
Sweden										
(Sveriges Allmanna Lantbrukssällskap) Average 1909-13 = 100.										
Plant products	120	125	130	126	127	128	112	100	108	108
Dairy products	134	133	125	124	132	132	134	112	133	122
Meat animals	138	134	135	126	123	118	133	132	126	120
Livestock products	135	133	127	124	129	128	134	117	131	121
Total agricultural products	130	130	128	125	128	128	126	111	123	117
Feedingstuffs	140	139	134	133	137	139	139	125	133	125
Fertizers	93	94	93	94	94	94	94	97	95	95
Building materials	194	194	194	194	194	193	164	162	161	162
Machinery and implements	217	208	196	196	196	196	179	179	177	177
Sundries	130	131	130	131	128	127	113	107	112	109
Total commodities purchased	148	146	143	143	144	144	135	129	133	129
Agriculural wages	193	193	193	193	193	193	174	170	164	170
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	...	74.5	71.5	69.3	69.8	65.8	60.4	78.1	69.7	68.2
Livestock products	...	66.1	65.5	62.0	62.7	65.7	64.9	53.6	60.0	56.6
Industrial products	...	78.0	76.3	75.9	76.5	76.6	69.2	67.3	69.7	66.7
Wholesale products in general	...	75.3	73.7	72.1	72.6	72.3	67.0	67.8	68.4	65.9

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1) Index-numbers calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) Agricultural year: 1 July to 30 June. — 3) Calendar year. — 4) 1-26 September

Price of rice in Italy.

The Ministry of Corporations has fixed the maximum wholesale price per quintal to be paid to the producer, free on rail at producers' stations, including sack, as proposed by the " Ente Nazionale Risi ", for the qualities " Originario camolino ", " Maratelli and P 6 " The maximum price for " Vialone " rice is not fixed as the production is limited

From 1 October 1937 to 30 September 1938 the prices in lire will have the following variations

	Originario Camolino	Maratelli and P 6
1 October 1937-31 January 1938	160 00	185 00
1 February-31 May 1938	162 00	187 00
1 June-30 September 1938	164 00	189 00

Egg prices in Roermond.

Prices of Netherlands eggs, white, 57 to 58 gr. per egg, ex Roermond, expressed in florins per 100, are given below for the period in which they did not appear in the *Crop Report*

Date	Eggs for export to Germany	Eggs for other destinations	Date	Eggs for export to Germany	Eggs for other destinations
16 July 1937	4 00	3 75	20 August 1937	5 20	3 90
23 » »	4 00	3 70	27 » »	5 20	4 10
30 » »	4 00	3 55	3 September »	5 20	4 20
6 August »	5 20	3 70	10 » »	5 20	4 40
13 » »	5 20	3 60	17 » »	5 20	4 90

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for September already available.

COUNTRIES PRODUCTS AND UNITS		Exports 1937	Exports 1936	Imports 1937	Imports 1936
COLOMBIA		June	June	June	June
Wheat	1000 centals	—	—	31	19
Wheat flour	» »	—	—	2	1
Rice	» »	—	—	34	15
Cotton	» »	—	—	3	5
Cacao	1000 lb.	—	—	51	196
NEW ZEALAND					
Wheat	1000 centals	0	0	12	90
Wheat flour	» »	0	0	0	6
Barley	» »	0	0	25	45
Oats	» »	0	0	1	1
Maize	» »	0	0	5	3
Rice	» »	0	0	3	7
Linseed	» »	0	0	0	0
Wool a)	1000 lb.	5,318	4,231	0	0
Wool b)	» »	3,697	5,040	0	0
Butter	» »	26,634	26,158	—	—
Cheese	» »	15,604	15,252	0	0
Cacao	» »	—	—	37	172
Tea	» »	24	2	1,100	1,014
Coffee	» »	0	0	57	57
NEW ZEALAND		July	July	July	July
Wheat	1000 centals	0	0	30	4
Wheat flour	» »	0	0	0	10
Barley	» »	0	0	39	41
Oats	» »	0	0	9	0
Maize	» »	0	0	55	3
Rice	» »	0	0	3	3
Linseed	» »	0	1	0	0
Wool a)	1000 lb.	3,170	3,106	0	0
Wool b)	» »	7,661	4,941	0	0
Butter	» »	23,023	28,221	—	—
Cheese	» »	14,264	14,370	0	0
Cacao	» »	—	—	66	128
Tea	» »	13	13	1,118	1,193
Coffee	» »	0	0	24	75
UNITED STATES		August	August	August	August
Wool	1000 lb.	0	0	21,116	17,547
INDO-CHINA					
Wheat flour	1000 centals	...	...	40	47
Maize	» »	1,494	1,175	—	—
Rice	» »	3,577	3,639	...	...
Coffee	1000 lb.	11	9	...	...
JAMAICA					
Coffee	1000 lb.	231	547	—	—

COUNTRIES PRODUCTS AND UNITS		Exports 1937	Exports 1936	Imports 1937	Imports 1936
IRAQ		August	August	August	August
Wheat	1000 centals	145	41	0	0
Wheat flour	» »	11	8	0	0
Barley	» »	614	477	0	0
Maize	» »	0	0	—	—
Rice	» »	1	0	0	0
Linseed	» »	11	11	—	—
Cotton	» »	0	0	0	0
Wool	1000 lb.	1,997	1,673	71	20
Butter	» »	0	2	0	0
Cheese	» »	0	0	2	0
Tea	» »	0	2	496	586
Coffee	» »	—	—	75	51
GERMANY		Sept	Sept	Sept	Sept
Wheat	1000 centals	0	1	1,681	36
Wheat flour	» »	0	1	59	0
Rye	» »	0	0	86	9
Barley	» »	0	0	333	6
Oats	» »	0	0	25	6
Maize	» »	0	0	5,396	60
Rice	» »	83	55	700	354
Linseed	» »	0	0	291	215
Cotton	» »	0	0	516	439
Wool a)	1000 lb.	0	4	8,805	7,432
Wool b)	» »	11	7	2,244	3,801
Butter	» »	0	0	20,373	14,381
Cheese	» »	4	13	8,133	5,598
Cacao	» »	192	0	15,324	15,084
Tea	» »	35	0	858	776
Coffee	» »	0	0	31,290	28 643
DENMARK					
Wheat	1000 centals	51	30	250	389
Wheat flour	» »	4	3	15	8
Rye	» »	1	0	313	495
Barley	» »	440	199	1	0
Oats	» »	41	0	34	0
Maize	» »	0	0	1,019	356
Rice	» »	0	0	2	0
Linseed	» »	0	0	42	31
Cotton	» »	0	0	22	15
Wool	1000 lb.	20	90	538	869
Butter	» »	27,146	27,593	—	—
Cheese	» »	1,746	1,486	4	2
Cacao	» »	—	—	836	238
Tea	» »	—	—	185	[illegible]
Coffee	» »	—	—	8,329	7,34
ESTONIA (*see over*)					
Wheat	1000 centals	0	0	0	0
Wheat flour	» »	0	0	0	0
Rye	» »	0	0	0	0
Barley	» »	0	0	0	0
Oats	» »	0	0	0	0
Maize	» »	0	0	0	0

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a) Wool greasy. — *b*) Wool scoured.

COUNTRIES PRODUCTS AND UNITS		Exports 1937	Exports 1936	Imports 1937	Imports 1936
		Sept.	Sept	Sept	Sept
ESTONIA (*concluded*)					
Rice	1000 centals	0	0	3	2
Linseed	» »	0	0	0	0
Cotton	» »	0	0	15	11
Wool	1000 lb.	0	0	64	117
Butter	» »	3,627	4,032	0	0
Cheese	» »	40	13	0	0
Cacao	» »	—	—	88	35
Tea	» »	—	—	11	9
Coffee	» »	—	—	20	9
FINLAND					
Wheat	1000 centals	0	0	77	121
Wheat flour	» »	0	0	34	34
Rye	» »	0	0	19	16
Barley	» »	0	0	0	0
Oats	» »	0	0	26	11
Maize	» »	0	0	146	150
Rice	» »	0	0	32	29
Linseed	» »	0	0	2	20
Cotton	» »	0	0	17	19
Wool	1000 lb.	20	0	421	518
Butter	» »	2.105	2,456	0	0
Cheese	» »	1,607	1,001	4	2
Cacao	» »	—	—	31	44
Tea	» »	—	—	26	18
Coffee	» »	—	—	3,898	4,107
FRANCE					
Wheat	1000 centals	79	103	889	557
Wheat flour	» »	121	198	82	90
Rye	» »	—	—	2	9
Barley	» »	1	0	82	964
Oats	» »	0	0	115	198
Maize	» »	0	0	1,683	1,394
Rice	» »	22	33	956	1,826
Linseed	» »	0	0	548	556
Cotton	» »	29	36	315	185
Wool	1000 lb.	4,592	6,973	23,565	14,202
Butter	» »	516	1,698	161	161
Cheese	» »	2,004	1,700	2,619	2,952
Cacao	» »	—	—	7,266	8,845
Tea	» »	0	0	185	302
Coffee	» »	4	4	27,342	30,629
HUNGARY					
Wheat	1000 centals	299	2,054	0	0
Wheat flour	» »	85	108	0	0
Rice	» »	222	320	0	0
Barley	» »	29	66	0	0
Oats	» »	0	47	0	0
Maize	» »	164	0	0	123
Rice	» »	0	0	20	22
Linseed	» »	0	0	0	0
Cotton	» »	0	0	32	45
Wool	1000 lb.	0	110	24	22
Butter	» »	1,444	1,770	0	0
Cheese	» »	42	33	0	0
Cacao	» »	—	—	668	902
Tea	» »	—	—	55	40
Coffee	» »	—	—	370	397
ITALY (*see over*)					
Wheat	1000 centals	3	7	455	774
Wheat flour	» »	164	396	13	8
Rye	» »	0	0	0	15
		Sept	Sept.	Sept.	Sept.
ITALY (*concluded*)					
Barley	1000 centals	2	0	28	44
Oats	» »	0	0	13	88
Maize	» »	0	0	339	202
Rice	» »	137	145	4	1
Linseed	» »	0	0	144	130
Cotton	» »	0	0	262	422
Wool a)	1000 lb.	18	0	5,589	3,971
Wool b)	» »	57	0	492	538
Butter	» »	88	75	64	130
Cheese	» »	4,367	4,054	1,001	1,265
Cacao	» »	—	—	1,323	1,133
Tea	» »	—	—	22	9
Coffee	» »	2	0	5,893	6,356
NORWAY					
Wheat	1000 centals	0	0	250	121
Wheat flour	» »	0	0	22	24
Rye	» »	0	0	150	337
Barley	» »	0	0	51	82
Oats	» »	0	0	0	0
Maize	» »	0	0	319	227
Rice	» »	0	0	11	4
Linseed	» »	0	0	76	48
Cotton	» »	0	0	5	2
Wool	1000 lb.	55	18	168	220
Butter	» »	4	4	0	0
Cheese	» »	368	309	60	26
Cacao	» »	—	—	201	798
Tea	» »	—	—	64	29
Coffee	» »	—	—	2,729	2,672
NETHERLANDS					
Wheat	1000 centals	11	4	1,089	786
Wheat flour	» »	1	7	116	125
Rye	» »	272	160	67	82
Barley	» »	173	122	489	259
Oats	» »	12	19	112	21
Maize	» »	1	0	930	1,422
Rice	» »	332	386	565	465
Linseed	» »	10	4	458	707
Cotton	» »	0	1	59	75
Wool a)	1000 lb.	260	567	161	569
Wool b)	» »	73	108	465	306
Butter	» »	10,207	11,951	2	2
Cheese	» »	12,529	11,374	77	88
Cacao	» »	291	600	5,657	11,696
Tea	» »	15	7	2,037	2,441
Coffee	» »	267	7	5,212	3,062
POLAND-DANTZIG					
Wheat	1000 centals	0	238	0	0
Wheat flour	» »	0	177	0	0
Rye	» »	2	648	0	0
Barley	» »	184	1,104	0	0
Oats	» »	0	189	0	0
Maize	» »	0	0	6	0
Rice	» »	15	21	234	58
Linseed	» »	0	2	0	0
Cotton	» »	0	0	146	139
Wool	1000 lb.	20	15	2,247	5,463
Butter	» »	972	3,344	0	0
Cheese	» »	150	2	20	11
Cacao	» »	—	—	1,116	1,038
Tea	» »	—	—	344	240
Coffee	» »	2	2	1,087	492

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a) Wool greasy. — b) Wool scoured.

COUNTRIES PRODUCTS AND UNITS		Exports		Imports	
		1937	1936	1937	1936
United Kingdom		Sept.	Sept	Sept	Sept.
Wheat	1000 centals	190	34	7,386	8,501
Wheat flour	» »	158	177	604	653
Barley	» »	...	...	2,644	2,816
Oats	» »	...	...	91	117
Maize	» »	254	233	6,140	6,680
Rice	» »	13	22	87	52
Linseed	» »	...	...	299	544
Cotton	» »	41	46	1,006	975
Wool	1000 lb.	7,196	14,196	29,489	34,282
Butter	» »	1,038	505	70,118	97,577
Cheese	» »	181	196	29,994	23,629
Cacao	» »	1,019	1,257	3,444	5,009
Tea	» »	877	1 030	47,466	49,124
Coffee	» »	492	1,252	481	703
Sweden					
Wheat	1000 centals	17	185	96	112
Wheat flour	» »	2	2	0	0
Rye	» »	1	0	0	4
Barley	» »	0	0	0	0
Oats	» »	0	0	45	8
Maize	» »	0	0	166	74
Rice	» »	0	0	13	8
Linseed	» »	0	0	74	104
Cotton	» »	0	0	45	29
Wool	1000 lb	0	0	1,991	2,143
Butter	» »	5,902	4,072	0	0
Cheese	» »	0	0	223	311
Cacao	» »	—	—	705	1,135
Tea	» »	—	—	77	93
Coffee	» »	—	—	8,481	8,964
Switzerland					
Wheat	1000 centals	0	1	782	931
Rye	» »	0	0	7	3
Barley	» »	0	0	208	141
Oats	» »	0	0	283	320
Maize	» »	0	0	172	90
Rice	» »	0	0	10	17
Cotton	» »	0	0	33	17
Wool	1000 lb.	35	29	324	1,153
Butter	» »	0	0	9	13
Cheese	» »	4,786	4,277	234	287
Cacao	» »	0	15	254	397
Tea	» »	2	2	159	170
Coffee	» »	0	0	2,079	2,326
Czechoslovakia (*see over*)					
Wheat	1000 centals	6	23	12	2
Wheat flour	» »	28	1	0	1
Rye	» »	1	0	66	2
Barley	» »	0	210	0	0
Oats	» »	28	15	0	0
Maize	» »	0	0	102	241
Rice	» »	0	0	65	79
Linseed	» »	0	0	20	15
Cotton	» »	3	5	152	133
		Sept	Sept.	Sept	Sept
Czechoslovakia (*concluded*)					
Wool	1000 lb.	57	22	933	2,359
Butter	» »	0	0	176	119
Cheese	» »	176	57	298	313
Cacao	» »	—	—	1,177	1,821
Tea	» »	—	—	154	143
Coffee	» »	—	—	1,927	2,064
Argentina					
Wheat	1000 centals	1,855	2,318	—	—
Wheat flour	» »	131	186	—	—
Rye	» »	5	379	—	—
Barley	» »	35	310	—	—
Oats	» »	267	355	—	—
Maize	» »	19,215	25,149	—	—
Linseed	» »	2,323	3,384	—	—
Cotton	» »	33	137	—	—
Wool a)	1000 lb	6,332	7,672	—	—
Wool b)	» »	2,945	2,791	—	—
Butter	» »	112	366	—	—
Cheese	» »	249	331	—	—
Brazil					
Coffee	1000 lb.	127,070	146,061	—	—
Burma					
Wheat	1000 centals	0	—	19	—
Wheat flour	» »	0	—	53	—
Barley	»	—	—	0	—
Maize	»	3	—	—	—
Rice	» »	5,064	—	3	—
Linseed	» »	—	—	0	—
Cotton	» »	6	—	—	—
Wool	1000 lb	18	—	—	—
Butter	» »	—	—	57	—
Cheese	» »	—	—	9	—
Tea	» »	4	—	384	—
Coffee	» »	—	—	29	—
Siam					
Rice	1000 centals	1,327	3,416	—	—
Kenya					
Coffee	1000 lb	1,109	2,915	—	—
New Zealand					
Wool a)	1000 lb.	1,784	3,898	...	...
Wool b)	» »	2,317	3,964	...	...
Butter	» »	25,064	27,783	—	—
Cheese	» »	12,705	12,730	...	...

a) Wool greasy — b) Wool scoured.

PRODUCTION

Burma. — At the end of October the monsoon was generally regarded as favorable. The rainfall was above normal. Floods occurred in the middle rains, but the destroyed areas were replanted. Standing crops were in good condition.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

27-X-1937.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland, Romania and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad 20, = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report

VEGETAL PRODUCTION

Wheat: world production and international trade in 1937-38.

The latest estimates of the wheat crops of various European countries, that were received by the Institute during November, do not affect the statistics already known, except for a few minor revisions. Poland, Lithuania and Finland have slightly raised their provisional estimates while Greece and Latvia have slightly lowered theirs. Official estimates are still not available for Belgium, Denmark, France and the Irish Free State, so that we consider that the estimate of total European production, estimated last month at 1,510 million bushels, need not for the present be revised.

In North America, the second official estimate of the Canadian crop shows, as usual, a small decrease below the September estimate; the final estimate, which in recent years has been very close to the November estimate, as is seen from the following table, will be published next January.

No revision of any importance is to be noted in the estimates of other countries of the northern hemisphere.

In the southern hemisphere, where wheat is now approaching the harvest, the latest reports from Argentina stated that the condition of the crop, which had improved after the good rains of October, had again deteriorate

Estimates of the Canadian wheat crop.
(Million bushels)

Year	September Estimate	November Estimate	Final Results
1931	271	298	321
1932	467	431	443
1933	283	272	282
1934	277	275	276
1935	291	274	282
1936	233	233	1) 229
1937	188	183	...

1) Subject to revision next January

as a result of late frosts on 30 October and 10 and 16 November, which seemed to have done serious damage in the main producing areas. The Government will publish the first provisional crop estimate only in December; last month we anticipated a production of 260 million bushels, against 248 last year and an average of 226, on the basis of the increase in acreage and a unit yield rather above the average. This forecast was made with the express reserve that the weather conditions of November and December should be normal, with no mischance such as rust or late frosts which sometimes seriously jeopardizes the outcome of a season. Now it is revealed that one such mischance has occurred at a critical stage in the growth of Argentine wheat, and although it is very difficult at present to calculate the precise consequences, we are obliged to make a rough estimate in order to revise our October estimates of world production in 1937. We reduce therefore the probable total crop of South America, taking into account also the probable production of Chile, Uruguay, etc., from 310 million bushels forecast in October to 280 million. We have thus a drop of about 30 million, with reservation that a further revision may be made when more precise information is received by the Institute

For Australia, whose production we forecast last month at 160 million bushels, the first Government estimate (163 million bushels) coincides almost exactly with the forecast. Of the various States, the two largest producers, New South Wales and Victoria report rather smaller crops than last year, while South Australia and Western Australia have distinctly higher productions than in 1936-37.

In the Union of South Africa the crop, having suffered from drought, shows, as was forecast, a considerable drop from last year, but stocks left over from last year will enable internal requirements to be satisfied, without having recourse to import.

Taking into account the revisions suggested by the statistics and reports received by the Institute in November, world wheat production in 1937 is slightly lower than we estimated last month.

As regards international trade in wheat, world net exports in the first two months of the season were 41 million bushels in August and 37 million in September against 47 and 52 million in the corresponding months of 1936

World wheat production 1)

(Million bushels).

YEARS	Europe 2)	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R
Average 1926-1930	1,342	1,315	300	518	117	164	3,756	836
1931	1,437	1,277	263	570	131	197	3,875	753
1932	1,489	1,213	286	503	140	225	3,856	742
1933	1,746	849	345	572	124	186	3,820	1,018
1934	1,549	816	290	554	153	140	3,502	1,117
1935	1,576	922	198	577	137	151	3,561	1,132
1936	1,484	873	297	596	115	157	3,522	...
Forecast 1937	1,510	1,085	280	630	133	170	3,808	..

1) Not including China, Iran, Turkey and Iraq — 2) Not including U R S S

This represents for the two months a total decrease in world demand below last year of about 10 million bushels a month, while our forecast made last month of a world import demand of 535 million bushels for the whole season meant only an average decrease of 5 5 million per month below last year's figures. Nevertheless, we maintain this estimate, for the decline of the first two months must certainly become smaller as the season progresses.

The sowing of winter wheat for the coming 1937 crop in the northern hemisphere proceeded in favourable conditions in almost the whole of Europe with the exception of some parts of the western Mediterranean where the excessively wet autumn hampered work and caused a rather uneven germination. But on the whole the condition of the newly sown crops seems quite good and, in many areas, better than last year. Numerical estimates of the area under cultivation are not yet available, but the impression is that the acreage under wheat is going to be at least as large as last year. In the U. S. S. R the season was on the whole favourable for winter sowing, though in some parts a certain delay in the work is reported.

In North America, sowings were effected in generally good conditions and towards the end of November crops had grown well except in some parts of the west, where moisture was not yet sufficient. Again this year a large acreage under winter wheat is expected, and, though it may not reach the record of last year, it should nevertheless be very close to it. But it will not really be possible to fix the area of winter sowing until the official estimate published at the end of next month is known.

Very heavy rain is reported from Canada in a large part of the area affected by drought, and large reserves of moisture in the sub-soil are being formed; this will be very important for the beginning of the next spring wheat crop.

In North Africa, the autumn rainfall was rather variable and wheat fields varied in condition from one district to another, but on the whole they were rather good. Sowing proceeded in favourable weather in India.

G. Capone

The world production of durum wheat.

Several large producing countries have published statistics on their production of durum wheat, and we reproduce them in the following table, but it must be remembered that their total only represents a fraction of the total world production of durum wheat, for Argentina, India and the U. S. S. R., where hard wheat is produced on a large scale, have not yet made any estimate of this crop.

Durum wheat production in some important producing countries.

Countries	Durum wheat production 1937	Durum wheat production 1936	Durum wheat production Average 1931-35	Proportion of the total output of wheat 1937	Proportion of the total output of wheat 1936	Proportion of the total output of wheat Average 1931-35
	Million bushels	Million bushels	Million bushels	%	%	%
Italy	75.0	58.4	57.0	25.3	26.0	21.3
Canada	1) 30.7	15.3	2) 17.8	1) 16.2	6.7	2) 6.3
United States	28.3	8.2	21.8	3.2	1.3	3.2
Algeria	23.4	18.6	22.9	68.8	62.6	69.9
French Morocco	11.0	8.5	20.0	60.0	69.4	68.5
Tunisia	11.0	4.4	9.5	60.0	45.5	66.6

1) September estimate — 2) Year 1935 only.

The Institute recently conducted an inquiry into durum wheat production in the various countries, in order to ascertain the relative importance of this wheat to the total production, and although a reply is still awaited from some countries, the following interesting information may be supplied.

In Europe durum wheat is cultivated in Italy (20-25 per cent. of the total crop), in Czechoslovakia (40 per cent), in Greece (almost half the acreage, but there is reason to believe that hard wheat is counted among durums) and in Malta (almost entirely durum wheat) A smaller proportion is produced in Bulgaria (5 per cent.) and Romania (3 per cent.) and an almost negligible proportion in Germany and Poland

The production of durum wheat in North America is shown in the table.

In South America, Columbia reported a proportion of 15 per cent., Chile 10 per cent. and Uruguay 8 to 10 per cent.; these three countries regularly supply statistics of durum wheat, but there are no estimates available yet for 1937-38. Argentina reported a proportion of about 30 to 40 per cent., but it has not yet any statistics on hand, and only after the results of the agricultural census, just taken, are known, will it be possible to collect on a reliable basis the estimates of different qualities of wheat.

In Asia, Cyprus and the French Mandated States of Syria produce solely durum wheat. In India, where the production of this wheat can be estimated on the average at about 40 million bushels (about 12 per cent. of the total), the Government, at the suggestion of the Institute, proposes to obtain detailed statistics of the durum wheat yield in 1938, when the final estimate of the crop is made in August 1938.

In Africa, apart from the three countries of French North Africa, which already publish regular statistics of durum wheat production, there may be mentioned Tripolitania (25 per cent.), Cyrenaica (80 per cent.) and, with negligible proportions, Kenya (1 per cent.) and Union of South Africa (2 per cent.).

G. C.

Current information from various countries on wheat, rye, barley and oats.

Europe.

Germany During October rainfall was well distrbuted throughout the country as in the previous month. Soil moisture was considered sufficient in 67 per cent of the agricultural land, fairly considerable in 4 per cent and poor in about 29 per cent Sowings of winter cereals have grown well and look satisfactory Mild weather has particularly favoured the germination of winter rye but all winter cereals are growing better than last year's crops,

Crop conditions on 1 November, in the system of the country, compared with those of 1 November 1936 were as follows winter wheat 2.5 (3.0), winter rye 2.5 (3.0) winter barley 2.4 (2.8) and winter spelt 2.5 (2.9)

Belgium October was fine and mild with only light and infrequent rains The first sowings of winter wheat have sprouted well

Bulgaria After the moist and warm conditions of the first half of October, the weather was fine and dry up to the last days of the month when wet conditions returned. Despite the weather, gathering and threshing of the crop were completed at the end of the month in all parts The conditions were very favourable, however, for the sowing of winter cereals Wheat and barley sowings were finished in nearly all parts Sprouting and growth were good as a result of warm weather and plentiful soil moisture. The conditions, by enabling deep ploughing, were favourable for preparations for spring sowings

According to the most recent estimate, the area cultivated to spelt this year is about 24,100 acres against 30,100 in 1936 and 27,20 on the average of the five years ending 1935, percentages, 80.0 and 88.4 The corresponding production is estimated at about 274,200 centals against 315,300 and 237,100, percentages, 87.0 and 115.7

The area cultivated to meslin this year is about 201,200 acres against 214,200 in 1936 and 223,200 on the average of the five years ending 1935, percentages, 93.9 and 90.2 The corresponding production is estimated at about 2,272,000 centals (3,918,000 bushels) against 2,594,000 (4,472,000) and 2,370,000 (4,087,000), percentages 87.6 and 95.9

Estonia Winter cereals were in better condition than a month earlier and at the same date a year ago The condition of winter wheat, according to the system of the country, was 3.5 and that of winter rye 3.7

France October was, generally speaking, fine and dry General rain however at the end of the month relieved the drought that often made field-work laborious in the centre, north and east. In the west the rainfall during October was heavier and floods occurred in some departments of the south-west at the beginning of November. A fall in temperature was accompanied by snowfalls in mountain areas of the south-west.

Preparation of the land and winter sowing proceeded rapidly in very good weather and are early. Wheat sowing had progressed well at the end of October and the first shoots were generally rapid and vigorous, despite some damage by field-mice, it is officially considered that wheat-fields this year will cover rather a larger acreage than last year, but as an estimate has not yet been published, the information is vague. The acreage under minor cereals seems to be average; the sprouting of winter rye, barley and oats has been good and the growth of the young plants was very satisfactory at the beginning of November.

Greece: The latest estimates of the cereal crops are generally slightly smaller than the earlier figures, the decrease being greatest in the case of wheat but much smaller in the case of rye, barley and oats.

The weather conditions of September and mid-October were favourable for preparatory work and for sowing

According to the most recent estimate, the area cultivated to meslin this year is about 161,600 acres against 135,400 in 1936 and 133,900 on the average of the five years ending 1935; percentages, 119.4 and 120.7 The corresponding production is estimated at about 985,000 centals (1,698,200 bushels) against 853,900 (1,472,300) and 757,400 (1,305,900); percentages, 115.3 and 130.0

Hungary: During the three weeks between 5 and 26 October, weather was dry, sunny and warm. Precipitation over much of the country was very light Day temperatures were normal during the first two weeks and above normal during the last week Night frosts were frequently reported.

Autumn sowing is in progress everywhere. At the end of the period mentioned, the sowing of winter rye and barley was finished The crops sprouted well and grew evenly Early-sown winter wheat also sprouted well and was growing vigorously The late crops, however, did not germinate easily owing to the drought In some places, neither winter sowing nor field work for spring crops could be completed.

Irish Free State. The weather during the greater part of October was mild and dry, so that conditions for late harvesting and for prepartion for autumn sowings were good

Italy: The weather between mid-September and mid-October was generally unfavourable to cereal crops in north and central Italy Heavy rains delayed or impeded the preparations of land for sowings and held up the growth of seedlings in mountainous areas In south Italy and in the islands weather conditions, though unfavourable in the second half of September, were better in the first half of October when rainfall was normal and enabled work and sowing to progress By 15 October the sowings of wheat and other cereals were completed in all parts except some of the hilly and mountainous districts

Latvia: October was marked by drought and high temperatures which somewhat delayed the sowing of winter cereals. 38 per cent. of the crop correspondents reported that winter wheat was in average condition, 48 per cent. that it was better than average and 14 per cent. that it was below average. Corresponding figures for winter rye were 32 per cent., 59 per cent. and 9 per cent.

Poland: The mild, sunny and rather wet autumn experienced in the greater part of the country was favourable for sowings and for the growth of winter wheat. The condition of the wheat, rye and barley crops on 15 October was 3.5 against 2.6 for wheat and rye and 2.9 for barley at the same date last year. According to the

Area and production of wheat.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	87	90	92	96.7	94 9	776	678	1,010	1,293	1,129	1,684	114.5	76.8
Germany	4,879	5,151	5,471	94.7	89.2	96,717	97,597	106,000	161,192	162,659	176,664	99.1	91.2
Austria	642	624	554	102.9	116.0	8,682	8,424	7,996	14,469	14,040	13,327	103.0	108.6
*Belgium	423	424	391	99.8	108.4	...	9,692	9,254	...	16,153	15,424	...	...
Bulgaria	2,861	2,955	3,023	96 8	94.6	33,896	36,211	30,592	56,492	60,350	50,985	93.6	110.8
*Denmark	319	296	272	107.8	117.3	...	6,759	7,214	...	11,265	12,023	...	...
*Spain	...	10,768	11,261	...	...	...	72,896	96,204	...	121,490	160,337	...	...
Estonia	168	162	140	103 8	120 4	1,660	1,460	1,398	2,767	2,433	2,330	113 7	118.8
Finland	242	215	99	112 4	245.0	3,792	3,265	1,509	6 320	5,442	2,515	116.1	251.2
*France	w) 12,772	12,712	13,276	—	—	...	153,562	190,015	...	255,932	316,685	...	...
Greece	2,118	2,065	1,755	102 5	120.7	19,632	11,722	13,145	32,720	19 537	21,908	167 5	149.4
Hungary	3,784	4,029	3,932	93.9	96 2	41,937	52,674	45,891	69,894	87,788	76,483	79 6	91.4
*Irish Fr. St.	...	255	70	...	...	...	4,704	1,690	...	7,839	2,817	...	...
Italy	12,820	12,693	12,260	101.0	104.6	177,609	134,744	160,287	296,009	224,568	267,140	131.8	110.8
Latvia	339	319	295	106.2	114.6	3,850	3,163	3,597	6,416	5,272	5,995	121 7	107 0
Lithuania	516	485	507	106 4	101 6	4,794	4,766	5,582	7,991	7,942	9,304	100 6	85.9
Luxemburg	45	45	34	100.0	131.2	714	642	518	1,190	1,070	863	111.2	138.0
Malta	9	10	9	95.9	99.3	196	141	165	326	236	274	138.6	119.0
Norway	79	75	38	106 2	208.5	1,514	1,257	620	2,524	2,094	1,034	120.5	244.1
Netherlands	320	374	315	85.6	101.6	7,776	9,345	8,353	12,959	15,575	13,922	83.2	93.1
Poland	4,183	4,305	4,333	97 2	96.5	40,565	47,015	43,549	67,607	78,357	72,580	86 3	93 1
Portugal	1,093	1,157	1,376	94 4	79.4	8,724	5,190	11,864	14,540	8,651	19,773	168.1	73.5
Romania	8 618	8,481	7,893	101.6	109 2	81,602	77,231	57,949	136,001	128,716	96,579	105.7	140 8
Un Kingdom.													
Engl and W.	1,731	1,704	1,535	101.6	112.7	29,299	30,867	31,409	48,832	51,445	52,349	94 9	93 3
Scotland	100	94	76	106.7	132.0	2,509	2,128	1,935	4,181	3,547	3,226	117.9	129 6
*N Ireland	4	7	6	63 3	72.1	...	164	142	...	273	236	...	...
Sweden	726	695	701	104.6	103.6	15,898	12,915	14,264	26,495	21,524	23,773	123.1	111.5
Switzerland	174	172	149	101.3	117 1	3,697	2,682	2,978	6,162	4,470	4,963	137 9	124 2
Czechosl x)	2,098	2,291	2,213	91.5	94.8	30,760	33,350	33,607	51,266	55,582	56,011	92.2	91.5
Yugoslavia	5,269	5,463	5,112	96 5	103 1	51,752	64,454	46,830	86,252	107,421	78,048	80.3	110 5
Total Europe	*52,901*	*53,654*	*51,912*	*98 6*	*101 9*	*668,351*	*641,921*	*631,048*	*1,113,898*	*1,069 848*	*1,051,730*	*104 1*	*105 9*
*U S S R	z) 101,678	96,116	87,437	105.8	116.3	...	...	571,965	...	...	953,256	...	...
Canada	25,570	25,289	25,630	101 1	99 8	109,503	137,531	208,126	182,505	229,218	346,876	79 6	52.6
United States u)	47,079	37,608	35,540	125.2	132 5	412,887	311,408	311,058	688,145	519,013	518,430	132 6	132.7
United States s)	21,119	11,212	16,354	188.4	129 1	119,400	64,469	96,724	199,000	107,448	161,206	185 2	123 4
Mexico	1,273	1,263	1,229	100 8	103 6	6,730	8,164	7,160	11,216	13,606	11,933	82.4	94 0
Total N Am	*95,041*	*75,372*	*78,753*	*126 1*	*120 7*	*648,520*	*521,572*	*623,068*	*1,080,866*	*869,285*	*1,038,445*	*124 3*	*104 1*
*Cyprus	...	190	176	...	...	...	1,105	1,103	...	1,842	1,838	...	...
Chosen	839	818	800	102.6	104.9	6,625	4,847	5,471	11,041	8,078	9,118	136 7	121 1
India	33,222	33,639	33,825	98 8	98 2	219,699	211,008	210,269	366,165	351,680	350,448	104 1	104.5
*Iraq	...	3,000	3) 2,417	...	...	...	11,795	7,441	...	19,658	3) 12,401	...	...
Japan	1,770	1,686	1,440	105 0	122 9	30,247	27,117	24,220	50 410	45,194	40,365	111 5	124 9
Manchukuo	...	2,682	3,102	...	...	25,164	18,406	22,777	41,939	30,675	37,960	136 7	110 5
*Palestine	...	...	472	...	...	...	1,677	1,598		2,795	2,663	...	...
Syria & Leb	1,349	1,316	1,253	102.5	107 6	10,326	9,422	8,680	17,210	15,704	14,467	109 6	119 0
*Transjordan	—	—	—	—	—	...	898	1,379	...	1,497	2,298	...	...
Turkey	8,323	8,843	7,983	94.1	104.3	84,188	83,099	55,732	140,311	138,496	92,884	101 3	151.1
Total Asia §)	*48,185*	*48,984*	*48,403*	*98 4*	*99 5*	*376,249*	*353,899*	*327,149*	*627,076*	*589,827*	*545,242*	*106 3*	*115 0*
Algeria	4,062	4,287	3,907	94.8	104 0	20,397	17,864	19,674	33,995	29,773	32,789	114 2	103 7
Egypt	1,421	1,464	1,549	97.1	91.8	27,226	27,421	26,293	45,376	45,701	43,822	99.3	103.5
*Eritrea	...	40	14	...	...	...	249	52	...	414	86	...	...
*Kenya 4)	...	...	41	...	...	...	...	252	...	...	419	...	...
Libya	111	80	46	137.7	241.6	592	251	149	987	418	249	235 9	396.1
F. Morocco	2,743	3,194	5) 3,019	85.9	—	11,023	7,341	5) 17,554	18,372	12,234	5) 29,255	150 2	—
Tunisia	2,219	1,221	2,019	181.7	109 9	11,023	4,850	8,554	18,372	8,083	14,256	227.3	128.9
Total N Afr.	*10,556*	*10,246*	*10,540*	*103.1*	*100.1*	*70,261*	*57,727*	*72,224*	*117,102*	*96,209*	*120,371*	*121 7*	*97.3*
*Argentina	6) 19,275	6) 17,503	6) 17,954	110.1	107 4	...	148,702	135,462	...	247,832	225,766	...	...
*Chile	...	1,917	1,826	...	...	...	17,222	17,670	...	28,702	29,450	...	...
*Uruguay	...	998	1,116	...	...	...	6,301	6,853	...	10,501	11,421	...	...
Un. S. Africa	...	2,133	1 763	...	...	7,220	9,646	8,682	12,033	16,077	14,470	74.8	83.2
Australia	13,735	12,351	13,982	111.2	98.2	97,800	90,064	103,139	163,000	150,106	171,898	108.6	94.8
*N. Zealand 7)	188	225	273	83 7	68.9	...	4,301	4,976	...	7,169	8,293	...	...
TOTALS §	**222,351**	**202,740**	**205,353**	**109.8**	**108 4**	**1,868,401**	**1,674,829**	**1,765,310**	**3,113,975**	**2,791,352**	**2,942,156**	**111.6**	**105.8**

See notes on page 874.

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Area and production of rye.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937 1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38		1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38	
				1936 — 1936/1937 = 100	Aver = 100							1936 — 1936/1937 = 100	Aver = 100
	1 000 acres					1,000 centals			1 000 bushels				
Albania	8	7	7	106 1	115 7	64	65	74	114	116	132	98 7	86 4
Germany	10 270	11,154	11,056	92 1	92 9	149 081	162 844	171 328	266 217	290 793	305 945	91 5	87 0
Austria	891	921	947	96 8	94 1	9 425	10 420	13 130	16 830	18,608	23 447	90 4	71 8
*Belgium	378	385	479	98 3	78 9		7 873	10 608		14 060	18 944	.	.
Bulgaria	456	489	517	93 1	88 1	4,644	4 585	4,880	8 293	8 188	8 714	101 3	95 2
*Denmark	343	327	350	105 1	98 1		4 392	5,490		7 842	9,804		
*Spain		1,471	1,466				10,110	12,150		18 053	21 697		.
Estonia	368	338	363	109 0	101 4	4,541	3 384	4 204	8 109	6 044	7,507	134 2	108 0
Finland	598	593	570	100 8	105 0	9 127	7 143	7,768	16 299	12 755	13,871	127 8	117 5
France	1 636	1,634	1,712	100 1	95 6	16 325	15 764	18 042	29,152	28,150	32,218	103 6	90 5
Greece	176	160	178	109 9	98 7	1 450	926	1,270	2 588	1 654	2 267	156 5	114 2
Hungary	1,516	1,607	1,568	94 3	96 7	12 849	15 744	15,978	22 945	28 115	28,532	81 6	80 4
*Irish Free State		2	3				38	48		68	85		
Italy	259	261	285	99 4	91 0	3 193	2 914	3,517	5 701	5 204	6,281	109 5	90 8
Latvia α)	705	637	618	110 7	114 1	9 228	6 241	6,864	16 479	11 145	12,257	147 9	134 4
Lithuania	1,259	1,216	1,231	103 5	102 3	13 249	11 935	12,548	23,658	21 313	22,407	111 0	105 6
Luxemburg	19	19	19	100 0	101 3	274	251	270	489	449	481	109 1	101 7
Norway	15	15	15	100 0	94 9	260	238	248	465	425	443	109 4	104 9
Netherlands	557	554	449	100 6	124 0	10,926	10,673	9 168	19 511	19 059	16 371	102 4	119 2
Poland	14,141	14,410	14,160	98 1	99 9	128 530	140 302	140 952	229 518	250 541	251 701	91 6	91 2
Portugal	569	388	376	146 4	151 1	2 600	1 941	2,573	4 642	3 466	4,595	134 0	101 0
Romania	1,060	1 041	939	101 8	112 9	9,350	9 992	7,063	16 697	17,842	12 613	93 6	132 4
Sweden	519	530	547	97 9	94 8	9 511	7,779	9,393	16 984	13 891	16,773	122 3	101 3
Switzerland	37	38	42	97 2	89 1	679	603	773	1 213	1,077	1,381	112 5	87 8
Czechoslovakia	2,390	2 494	2,512	95 8	95 2	32,730	31 667	38 849	58 447	56 549	69 374	103 4	84 2
Yugoslavia	627	628	615	99 9	102 1	4 614	4,481	4,593	8 239	8 002	8,202	103 0	100 5
Total Europe	*38 076*	*39 134*	*38 726*	*97 3*	*98 3*	*432 650*	*449 892*	*473 485*	*772 590*	*803 386*	*845 512*	*96 2*	*91 4*
*U S S R		. .	62 627				.	483 652			863 667		.
—													
Canada	894	635	712	140 8	125 6	3 219	2 397	3 615	5 749	4 281	6 456	134 3	89 0
United States	3,960	2,757	3,021	143 6	131 1	29 047	14 310	19 027	51 869	25 554	33 977	203 0	152 7
Total N Am	*4,854*	*3 392*	*3,733*	*143 1*	*130 0*	*32 266*	*16,707*	*22 642*	*57 618*	*29 835*	*40 433*	*193 1*	*142 5*
Turkey	875	909	670	96 2	130 6	10 540	9,889	5 824	18 822	17,660	10,400	106 6	181 0
—													
Algeria	4	4	3	97 6	114 4	23	16	17	41	29	31	142 6	134 0
*French Morocco	.	7	3		. .		20	12		35	22		...
—													
*Argentina	6) 2,125	6) 2,204	6) 1,731	96 4	122 8		4,189	5,626	.	7 480	10 047		.
—													
TOTALS	**43,809**	**43,439**	**43,132**	**101.8**	**101.6**	**475,479**	**476,504**	**501,968**	**849,071**	**850,910**	**896,376**	**99.8**	**94.7**

See notes on page 874

Area and production of barley.

Countries	† Area					† Production							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	11	11	13	98.1	83.7	108	95	142	226	198	295	114.0	76.4
Germany	4,235	4,041	3,958	104.8	107.0	78,184	74,937	71,837	162,886	156,122	149,663	104.3	108.8
Austria	397	403	415	98.5	95.6	5,505	6,130	6,123	11,469	12,771	12,757	89.8	89.8
*Belgium	61	74	86	82.5	71.1		1,748	2,016	..	3,642	4,199	.	...
Bulgaria	530	537	569	98.8	93.2	7,044	7,109	6,444	14,675	14,810	13,426	99.1	109.3
*Denmark	906	912	860	99.4	105.4	.	19,802	21,994		41,255	45,823		...
*Spain		4,528	4,683			.	37,690	52,784	...	78,523	109,968		.
Estonia	220	250	263	88.0	83.7	1,807	1,915	2,280	3,765	3,989	4,750	94.4	79.3
Finland	324	324	312	100.0	103.7	3,836	4,165	3,958	7,992	8,676	8,245	92.1	96.9
France	1,765	1,837	1,795	96.1	98.3	21,963	22,467	23,516	45,758	46,807	48,993	97.8	93.4
Greece	566	511	536	110.8	105.6	5,051	3,388	4,268	10,523	7,058	8,892	149.1	118.3
Hungary	1,180	1,161	1,152	101.6	102.4	10,412	14,514	13,832	21,692	30,238	28,818	71.7	75.3
*Irish Fr. St.		130	124	...			2,739	2,836	.	5,707	5,908	...	..
Italy	483	482	510	100.1	94.7	5,149	4,246	4,944	10,728	8,845	10,300	121.3	104.2
Latvia	449	468	458	95.9	98.0	4,750	3,639	4,417	9,897	7,580	9,202	130.6	107.5
Lithuania	529	529	501	99.9	105.5	5,449	5,128	5,369	11,353	10,683	11,185	106.3	101.5
Luxemburg	5	5	8	100.0	66.3	68	65	99	142	134	207	105.9	68.7
*Malta 8)		5	6				83	113	.	173	236	.	..
Norway	149	149	143	99.7	103.8	2,864	2,531	2,420	5,967	5,273	5,042	113.2	118.3
Netherlands	122	106	69	116.0	177.7	3,091	2,668	1,715	6,439	5,559	3,573	115.8	180.2
Poland	3,046	2,933	2,993	103.9	101.8	28,881	30,896	31,894	60,169	64,367	66,447	93.5	90.6
Portugal	194	193	171	100.4	113.2	957	769	942	1,994	1,603	1,962	124.4	101.7
Romania	3,780	3,980	4,411	95.0	85.7	19,071	35,535	28,929	39,732	74,033	60,270	53.7	65.7
Un. Kingdom													
Engl. a. W.	823	819	879	100.5	93.7	12,835	14,851	15,922	26,740	30,940	33,171	86.4	80.6
Scotland	82	72	78	113.5	105.3	1,725	1,478	1,626	3,593	3,080	3,388	116.7	106.1
*N. Ireland	3	3	2	98.2	144.6		62	43		130	90		...
Sweden	255	255	270	99.6	94.2	4,306	4,404	4,746	8,970	9,175	9,889	97.8	90.7
Switzerland	11	10	15	102.5	70.3	181	155	253	377	322	528	117.1	71.4
Czechosl.	1,658	1,565	1,680	105.9	98.7	24,582	22,462	26,570	51,214	46,797	55,354	109.4	92.5
Yugoslavia	1,030	1,051	1,043	98.0	98.7	8,443	9,322	8,959	17,590	19,421	18,665	90.6	94.2
Total Europe	*21,844*	*21,692*	*22,242*	*100.7*	*98.2*	*256,262*	*272,869*	*271,205*	*533,891*	*568,481*	*565,022*	*93.9*	*94.5*
*U.S.S.R.	2) 21,574	2) 20,150	18,869	107.1	114.3			145,729			303,607		...
Canada	4,331	4,432	3,741	97.7	115.8	41,265	34,523	34,486	85,969	71,922	71,846	119.5	119.7
United States	11,166	8,322	10,596	134.2	105.4	111,840	70,777	101,177	233,000	147,452	210,785	158.0	110.5
Total N. Am.	*15,497*	*12,754*	*14,337*	*121.5*	*108.1*	*153,105*	*105,300*	*135,663*	*318,969*	*219,374*	*282,631*	*145.4*	*112.9*
*Cyprus		110	107	.			908	777		1,891	1,618	.	.
Chosen	2,685	2,616	2,481	102.7	108.2	30,112	22,292	22,578	62,734	46,442	47,038	135.1	133.4
*Iraq		2,000	3) 1,270				12,125	3) 6,449		25,262	3) 13,435		..
Japan	1,866	1,918	1,979	97.3	94.3	34,727	33,098	36,327	72,349	68,955	75,683	104.9	95.6
*Palestine			494		.		1,216	1,045		2,534	2,178		..
Syria & Leb.	795	727	766	109.3	103.7	7,209	6,792	6,322	15,019	14,151	13,170	106.1	114.0
*Transjord.	—	—	—	—	—		371	535		772	1,114		.
Turkey	4,408	4,484	3,762	98.3	117.2	50,375	50,788	32,890	104,949	105,810	68,522	99.2	153.2
Total Asia	*9,754*	*9,745*	*8,988*	*100.1*	*108.6*	*122,423*	*112,970*	*98,117*	*255,051*	*235,358*	*204,413*	*108.4*	*124.8*
Algeria	2,951	3,120	3,240	94.6	91.1	12,487	14,150	16,486	26,015	29,480	34,347	88.2	75.7
Egypt	271	282	308	95.9	88.0	5,074	5,196	4,847	10,571	10,825	10,098	97.7	104.7
*Eritrea	.	91	56	.	.		440	331		916	689		.
Libya	346	179	407	193.1	85.2	1,243	261	1,019	2,589	543	2,124	476.6	121.9
F. Morocco	4,201	4,104	5) 3,684	102.4	—	16,755	33,651	5) 25,173	34,907	70,108	5) 52,444	49.8	—
Tunisia	1,503	741	1,240	202.8	121.2	4,409	1,653	5,027	9,186	3,445	10,472	266.7	87.7
Total Africa	*9,272*	*8,426*	*8,879*	*110.0*	*104.4*	*39,968*	*54,911*	*52,552*	*83,268*	*114,401*	*109,485*	*72.8*	*76.1*
*Argentina	6) 1,927	6) 1,925	6) 1,746	100.1	110.4	.	14,330	13,694	.	29,855	28,530	.	.
*Chile	..	178	161				2,169	2,394	.	4,519	4,987	..	...
*Uruguay	.	49	18	.	.		381	129		794	268	...	..
*N. Zealand 7)	31	26	27	121.5	113.4	.	373	306		778	637	...	...
TOTALS	**56,367**	**52,617**	**54,446**	**107.1**	**103.5**	**571.758**	**546.050**	**557.537**	**1.191.179**	**1,137,614**	**1,161,551**	**104.7**	**102.6**

See notes on page 874

Area and production of oats.

Countries	†) Area					†) Production							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	24	25	24	97.2	100.7	181	190	234	565	595	730	95.0	77.4
Germany	7,030	6,866	7,791	102.4	90.2	129,378	123,865	135,125	404,304	387,074	422,261	104.5	95.7
Austria	698	713	755	97.9	92.4	9,116	9,421	9,180	28,488	29,439	28,687	96.8	99.3
*Belgium	521	534	648	97.6	80.5	...	12,196	15,245	...	38,111	47,640	...	...
Bulgaria	269	299	299	90.1	90.1	2,734	2,998	2,205	8,544	9,368	6,890	91.2	124.0
*Denmark	928	933	943	99.5	98.4	...	18,437	22,120	...	57,616	69,123	...	...
*Spain	...	1,358	1,917	...	...	...	12,183	14,774	...	38,070	46,169	...	...
Estonia	358	341	350	104 9	102.3	3,168	2,509	3,106	9,900	7,842	9,706	126.2	102.0
Finland	1,122	1,087	1,142	103.2	98.3	14,771	14,357	14,815	46,159	44,864	46,295	102 9	99.7
France	7,952	8,134	8,312	97.8	95.7	100,477	92,914	105,481	313,989	290,354	329,626	108.1	95.3
Greece	415	335	336	123.8	123.2	3,169	2,081	2,244	9,904	6,502	7,013	152.3	141.2
Hungary	572	529	560	108.2	102.3	5,184	5,776	6,053	16,201	18,049	18,914	89.8	85.7
*Irish Free State	...	559	617	...	...	...	11,580	13,211	...	36,188	41,283	...	...
Italy	1,069	1,075	1,093	99.4	97.9	13,629	10,545	12,165	42,591	32,952	38,015	129.3	112.0
Latvia	828	838	784	98.8	105.7	9,029	6,270	7,808	28,214	19,595	24,401	144.0	115.6
Lithuania	861	883	867	97.6	99.4	8,595	7 310	8,274	26,860	22.845	25,856	117.6	103.9
Luxemburg	65	65	69	100.0	94.1	924	836	1,002	2,887	2.612	3,132	110.5	92.2
Norway	211	210	231	100.3	91.4	4,260	3,775	3,835	13,314	11,797	11,983	112.9	111.1
Netherlands	358	333	339	107.4	105.7	9,420	6,988	6,277	29,438	21,836	19,615	134.8	150.1
Poland	5,672	5,572	5,458	101.8	103.9	53,132	58,204	55,256	166,035	181,887	172,675	91.3	96 2
Portugal	723	657	442	110.1	163.6	2,360	1,847	1,962	7,376	5,770	6,132	127.8	120.3
Romania	1,906	1,986	2,035	96.0	93.7	8,388	18,676	14,446	26,211	58,362	45,144	44.9	58.1
United Kingdom:													
Engl. and Wales	1,222	1,420	1,510	86.1	81.0	20,250	24,192	26,746	63,280	75,600	83,580	83.7	75.7
Scotland	816	829	840	98.5	97.1	15,322	14,381	15,178	47,880	44,940	47,432	106.5	100.9
*N. Ireland	257	265	282	96.9	91.0	...	5,796	5,878	...	18,112	18,370	...	...
Sweden	1,641	1,654	1,629	99.2	100.7	27,673	27,293	25,755	86,476	85,291	80,484	101.4	107.4
Switzerland	27	26	35	104.1	77.5	514	440	647	1,605	1,375	2,022	116.8	79.4
Czechoslovakia	1,920	1,888	1,972	101.7	97.4	30,255	26,860	29,417	94.547	83,938	91,928	112.6	102.8
Yugoslavia	846	890	902	95.0	93.8	6,565	7,342	6,686	20,517	22,942	20,894	89.4	98.2
Total Europe	*36,605*	*36,655*	*37,775*	*99.9*	*96.9*	*478,494*	*469,070*	*493,897*	*1,495,285*	*1,465,829*	*1,543,415*	*102.0*	*96.9*
*U. S S. R.	2) 43,193	2) 43,525	42,460	99.2	101.7	...	...	329,727	...	...	1,030,389	...	...
Canada	13,049	13,118	13,468	99.5	96.9	93,319	92,405	118,509	291,622	288,764	370,342	101.0	78.7
United States	35,933	33,213	37,553	108.2	95.7	368,640	252,512	310,094	1,152,000	789,100	969,044	146.0	118.9
Total N. Am.	*48,982*	*46,331*	*51,021*	*105.7*	*96.0*	*461,959*	*344,917*	*428,603*	*1,443,622*	*1,077,864*	*1,339,386*	*133.9*	*107.8*
Syria & Leb.	27	28	30	93.9	87.6	237	241	278	741	752	868	98.4	85.4
Turkey	554	1,099	433	50.4	127.7	5,307	4,751	3,715	16,583	14,846	11,611	111.7	142.8
Algeria	477	473	476	101.0	100.3	2,866	3,869	2,931	8,957	12,090	9,160	74.1	97.8
Fr. Morocco	94	80	5) 66	116.8	—	926	425	5) 497	2,894	1,328	5) 1,552	218.0	—
Tunisia	126	62	65	204.0	195.1	441	220	481	1,378	689	1,502	200.0	91.7
Total N. Afr.	*697*	*615*	*607*	*113.3*	*114.6*	*4,233*	*4,514*	*3,909*	*13,229*	*14,107*	*12,214*	*93.7*	*108.3*
*Argentina	6) 3,237	6) 3,158	6) 3,434	102.5	94.3	...	17,461	19,061	...	54,564	59,566	...	...
*Chile	...	282	202	...	...	...	2,206	1,966	...	6,894	6,144	...	...
*Uruguay	...	213	181	...	...	...	1,449	841	...	4,529	2,628	...	...
*New Zealand 7)	286	316	371	90.6	77.2	...	1,410	1,311	...	4,407	4,096	...	...
TOTALS	**86,865**	**84,728**	**89,866**	**102.5**	**96.7**	**950,230**	**823,493**	**930,402**	**2,969,460**	**2,573,398**	**2,907,494**	**115.4**	**102.1**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including spelt. — 2) Area provided for in the Plan. — 3) Average of three years. — 4) Cultivation by Europeans only. — 5) Incomplete data. — 6) Area sown. — 7) Area includes that for chaff, hay, feeding-off, etc. — 8) Barley and meslin.

report of the State Meteorological Institute, the crop condition of winter cereals remained unchanged in the second half of October

According to provisional estimates, the production of straw of winter cereals is 281,800,000 centals (14,090,000 short tons) and of spring cereals straw 105,600,000 (5,280,000). The relative decreases below last years production are 24 9 per cent. and 18 per cent

Romania: Prepartion of the land for sowing of winter cereals was effected in very good conditions By 10 November sowing was almost finished. Early sown crops have sprouted normally and are growing well It is estimated that the acreage under winter wheat this year will be higher than last year.

United Kingdom· The weather during October was mainly fine and dry, though rain fell in the last week Good progress was made with stubble cleaning, but ploughing and autumn sowing were delayed by the hardness of the ground in many districts. In Scotland conditions were good for late harvesting Grains of all cereals were of good or very good quality on the whole

Czechoslovakia September this year was a month of average temperature but rather wet, with the exception of the eastern border regions October was warmer and drier. The sowing of winter cereals, though delayed in places at first by wet weather, was already mostly completed or being completed on 1 November, especially after beet and potato crops Wheat has sprouted well in warm wet weather and is growing very satisfactorily.

The crop condition of winter cereals was definitely better this year than last year at this time On 1 November crop condition in the system of the country was 2 1 for wheat and rye, against 3 2 for wheat and 3 3 for rye last year. From several areas the appearance of numerous field-mice was reported, threatening winter cereals Slugs also have been prevalent in many places. Otherwise no insect damage or disease worth noting has been reported

According to the most recent estimate, the area cultivated to meslin this year is about 11,600 acres against 15,300 in 1936 and 17,400 on the average of the five years ending 1935, percentages, 95 0 and 83 8 The corresponding production is estimated at about 191,000 centals (329,000 bushels) against 202,000 (348,000) and 246,000 (425,000), percentages, 94 7 and 77 5

Yugoslavia Despite the extended use of selected varieties, particularly of wheat, "bankut" and "starabanatska" having now replaced nearly all other varieties, especially in the main growing areas, the unit yield was not very satisfactory this year and can be described only as average The yield of other grains was also mediocre, particularly in the case of rye and oats

During the first two decades of October weather was variable, cloudy, rather cold and wet with many instances of morning fog Snow fell in mid-October on the high plateaux During the second decade weather became warmer, dry and sunny These conditions were very favourable for preparatory work and for the sowings of winter cereals which were in full swing at the beginning of November.

U. S S. R.· By 10 November threshing was completed over an area of 185,972,000 acres, or 83 per cent. of the acreage harvested. At the same date winter cereals had been sown over an area of 89,061,000 acres, or 97 per cent of the plan against 92,144,000, also 97 per cent of the plan, by 10 November last year.

In the second and third decades of October and the first decade of November, the weather was on the whole mild In the second decade of October there was more or less heavy rain almost everywhere while in the third decade it was rather dry.

In the first decade of November, there was rain in some areas and even heavy rain in north Caucasus and south-west Ukraine.

According to reports of the meteorological service, the condition of the winter grain crops at the end of the first decade of November, in most of the Ukraina was better than average or good. The mild and wet weather of October and the first decade of November and the normal fall in temperature were favourable for the growth of the sowings which are now tillering. In the southeast of the Donetz province, in the south of the Nikolayev and west of Odessa where rains have not been plentiful, the crop condition of winter cereals was generally satisfactory and average or good on well prepared land

America.

Argentine (Telegram of 17 November)· In the cereal growing area, comprising the provinces of Buenos Aires, Santa Fé, Entre Rios, Córdoba, and the Territory of La Pampa, the condition of cereals varies from average to good In the north of this area the threshing of wheat is making good progress.

Canada· The preliminary estimate of the area to be sown to winter wheat this year is 690,000 acres. The revised estimate of last year's sowings is 781,000 acres while the average of the preceding five years was 626,000 acres, percentages, 88 3 and 110.2. The condition of the crop on 31 October was 93 as compared with 107 a year ago Rye sowings are estimated at 517,000 acres against 790,000 acres and an average of 590,000 acres, percentages, 64 7 and 87.6. Condition on 31 October was 84 against 76.

The proportion of land intended for next year's crops that had been ploughed up to 31 October 1937 is estimated at 45 per cent. compared with 46 per cent. up to the same date in 1936

United States. Winter wheat showed some improvement in the last week of October except in central States and along the Pacific Reseeding was resumed on a large scale throughout Kansas, although the subsoil moisture was still deficient

The first week of November favoured the growth of winter cereals but most of the west continued dry In parts of Missouri and Iowa the plant has a poor stand and much reseeding will be necessary

Africa

Algeria. Temperatures were very changeable with intervals of scirocco There were floods in Oran. Sowings have begun generally The rain will probably result in good sprouting especially in the west and along the coast. Work was done in good conditions in the west and in fairly good conditions in the east.

Egypt: Tillage was in active progress and small areas in some provinces were already sown with wheat during the last two weeks of October. Germination and growth are satisfactory. Tillage and sowing were retarded especially in Lower Egypt owing to rainfall at the end of the month.

The early crops of autumn millet in Middle Egypt are progressing towards maturation and harvesting was begun in few areas. Formation of the cobs is in progress in Upper Egypt. Crop condition is slightly above the average.

French Morocco: Rain returned at the end of September throughout Morocco. The temperature everywhere dropped considerably. However in some areas of the south the rainfall was still insufficient. Barley fields already sown permit a forecast that in parts of the country the acreage under this crop will be above average. Durum wheat for sowing has been bought by the Administration to be distributed with the aid of the Societés Indigènes de Prévoyance, in the areas that at present lack it. Field work was in full swing and a large use of fertilisers is reported.

Union of South Africa: The first estimate of wheat production in the 1937-38 season is 7,220,000 centals (12,030,000 bushels). This is a heavy drop of 25.2 per cent. from last year's production of 9,646,000 (16,077,000), and is also 16.8 per cent. below the five-year average of 8,682,000 (14,470,000).

The wet weather that had adversely affected crops in the south-west was succeeded by fine spring weather in September and crops improved. On the south coast, following heavy rains cereals were looking fine. But in the Karroo crops were suffering from lack of rain. In the border districts and northwest no harvest was expected at the end of September as a result of the prolonged drought

In the Orange Free State drought and the hard soil have delayed ploughing. Most of the winter crops would be ruined unless rain came soon.

In the Transvaal fine rains fell in the highveld in September and the wheat crop was very promising at the end of the month., but conditions were still too dry in the centre

Oceania.

Australia: The latest estimate of the production of wheat by states in the 1937-38 season is as follows: Western Australia 18,995,000 centals (31,659,000 bushels), against 12,775,000 (21,291,000) last season, South Australia 23,400,000 (39,000,000) against 17 229,000 (28,715,000), New South Wales 28,500,000 (47,500,000) against 32,902,000 (54,837,000), Victoria 24,000,000 (40,000,000) against 25,707,000 (42,845,000).

World maize production and trade.

I. - - GENERAL CONSIDERATIONS.

For the production and international trade of maize there are two periods which are of special importance The first comprises the months of October and November, when the crop of the northern hemisphere is assured and one can estimate sufficiently closely the volume of production compared with world requirements; the second period comprises the months of March and April, when a similar estimate may be made for the southern hemisphere. The period October to November coincides with the beginning of the commercial season in the important producing regions in the northern hemisphere (Danubian season) and marks the middle of the Argentine season which began six months before. It is the best time to examine what has happened during the six previous months in international trade and to estimate the extent of world exports during the six following months.

The forecast of consumption in the various countries and consequently the estimates of the quantities required for exports from the countries that have surpluses of maize to the countries, which do not produce sufficient or none at all, are generally more difficult than for the other cereals, but this year they are extremely hazardous. For this season it is not enough to examine the maize production in various countries and the barley and oats produced in the maize importing countries in order to be able to predict sufficiently closely world requirements. Owing to the fact that various countries have made it compulsory to mix maize flour with wheat flour (the maize quota varying from 5 to 12 per cent) for the manufacture of bread for sale, we have quite a new statistical element to take into account. It is a fact of no less importance for international trade that during this season there have been exceptional oscillations in maritime and insurance rates for sea transport, as a result of the international political situation and war activities Owing to the increase in the tendency to autarchy in various countries maize has been assigned various economic functions according to its relative importance with other cereals and to the fodder available in these countries In view of these new tendencies there may be other changes in the use of maize, so that any estimate of the increase in maize consumption in the near future can only serve as an indication.

II — ACREAGE UNDER MAIZE IN THE NORTHERN HEMISPHERE

The statistics published by the various maize producing countries up to the middle of November are sufficient to give a general impression of the maize season in the northern hemisphere By taking the statistics which are available for the United States and Canada and those of the four Danubian countries, Italy, Manchukuo and Turkey, a definite estimate can be made of the acreage of maize and the harvest results of the hemisphere as a whole, provided that due allowance is made for the additional information of the other producing countries, which are relatively fairly important (U. S S. R , Mexico, India and Egypt)

1 — *Area of maize in the northern hemisphere*

(Millions of acres)

	1937	1936	Average 1931 1935
United States, Canada	96 3	93 0	102 2
Danubian countries			
Romania, Yugoslavia, Hungary, Bulgaria	23 9	24 2	23 2
European maize-importing countries			
Austria, Greece, Italy, Czechoslovakia	4 9	4 9	4 7
Manchukuo, Turkey	4 2	4 2	3.7
French Morocco	1 1	1 1	0 9
General total	130 4	127 4	134 7

The area of maize that has been harvested in the United States, which are the largest producers not only in the northern hemisphere but in the world, shows an increase of 3 6 per cent over last year, though it is about 5 8 per cent.

below the average of 1931-35; and it must be remembered that this average includes the very small acreage of 1934, that was due to the disastrous drought. To obtain a true view of this increase over of the 1936 crop it is well to remember that the 1936 season was a year of very reduced acreage, owing to the drought. Consequently the area under maize in the United States in 1937 is rather low compared with the years previous to 1934, in which year the Government policy of reducing acreage in order to keep up prices of agricultural products was begun. The increase in the acreage under maize compared with 1936 (small in the main producing states of the north centre but large in the great plains states) is to be attributed largely to the very reduced supplies of fodder in the country, to the high price of maize and to the favourable weather conditions at the time of sowing (March-April 1937). Moreover it must be remembered that during these months the United States imported large quantities of maize from Argentina (9.4 million bushels during March and 6.2 million bushels during April) and that the price of yellow maize No 3 at Chicago was, on the average, 114 cents per bushel during March and 133 cents per bushel during April

In the second centre of production in the northern hemisphere, namely the Danubian States (Romania, Yugoslavia, Hungary and Bulgaria) there is be noted a check in the tendency to increase the acreage, especially during recent years Actually, this check occurred in Romania, Yugoslavia, and Bulgaria, but not in Hungary In the latter country the gradual increase in acreage under maize continues and is accompanied by an increase in the acreage under barley and oats, but by a decrease in the acreage under bread cereals (wheat and rye). This tendency is due to the difficulties met by this country in the exportation and sale of bread cereals, and to a continuous increase in the raising of livestock

In the European maize producing but also importing group of countries, that have already published statistics the area is practically the same as last year, but there is an increase, compared with the five-year average, of 3 6 per cent. Italy which is the most important country of this group has reduced her acreage 1 3 per cent compared with last year; this decrease offsets the increase in the other three countries The countries in this group are evidently tending to increase, or at least not to diminish the acreage under maize in order to reduce as far as possible their imports from abroad.

In Manchukuo, maize cultivation is increasing slightly but continuously, while in Turkey have occured oscillations up to 1933, when the acreage showed a large increase, reaching a maximum, but later there was a tendency to reduce the acreage, which fell to a minimum in 1935, but thenceforth made gradual recovery. The area of maize harvested in French Morocco is much lower than that of 1936 as a result of drought which destroyed the crop over wide unirrigated areas.

On the whole, the acreage of the thirteen countries considered shows a slight increase (2.3 per cent) over 1936 and a more apparent decrease (3.2 per cent) below the previous five-year average. There is some reason to believe that this picture will not have to be greatly revised when the other countries of the northern hemisphere are added

*** *St. II Ingl.*

III — UNIT YIELD OF MAIZE IN THE NORTHERN HEMISPHERE.

It is clear that the large production of maize in the northern hemisphere in the present season is not at all or only to a small extent due to an increase in acreage, it is rather due to the season being generally favourable for maize growing. The weather reports, made in the United States from 15 April on maize growing, reported good, though not too favourable, conditions right from the beginning of sowing to maturation Sowing was delayed to the end of April and took place in unfavourable and wet weather during May. But thereafter the crop made good and rapid progress, passing well the critical period of growth

2. — *Unit-yield of maize in the northern hemisphere.*

(Bushels of 56 lb per acre)

	1937	1936	Average 1931 1935
United States, Canada	27.6	16.5	22.9
Danubian countries			
Romania, Yugoslavia, Hungary, Bulgaria . .	21.5	23.2	20.5
European maize-importing countries			
Austria, Greece, Italy, Czechoslovakia . . .	33.2	30.8	26.8
Manchukuo, Turkey	27.0	26.1	23.5
French Morocco	4.8	10.6	6.7
General unit-yield . . .	26.5	18.6	22.5

From the most recent available information (12 November) the unit yield of the United States is estimated at 27.6 bushels per acre against 16.5 in 1936 and 22.9 in the previous five year average In comparison it should be noted that in the five-year average 1931-35, the highest yield was in 1932 with 26.5 per acre and the lowest in 1934 with 16.0 per acre.

In the Danubian group of countries the season was excellent for Yugoslavia and Hungary, not so good for Bulgaria and very bad for Romania. For the latter country, which is the largest producer in Europe, sowing was carried out late, owing to cold wet weather. At the end of May and the beginning of June the crop suffered from the drought that is often characteristic of the Romanian climate. At the end of August and in September rain fell but did not much improve crop conditions. According to the latest information, that will probably have to be considerably revised later, the unit yield in Romania will be only 13.0 bushels per acre against 17.0 in 1936 and an average of 17.4 in 1931-35. In recent years the lowest yield in Romania was in 1933 with 15.0 bushels per acre and the highest in 1931 with 20.3bushels per acre. Yugoslavia on the other hand had a record production, higher than the previous maximum of 1936 During the whole period of growth in that country there was an excellent combination of fine weather with plenty of rain. At harvest time the weather was rather wet and this will have eventually reduced the yield. The unit yield of Yugoslavia, estimated before the wet weather that has since arrived, was about 32.2 bushels per acre. In Hungary the weather was as favourable as in Yugoslavia so that the yield is 35.9 bushels per acre, about equal to the record of 1936.

Among the group of European maize producing and importing countries, Italy reports a record production 36.9 bushels per acre against 32.6 in 1936 and an average of 29.1. In Italy weather conditions were rather unfavourable for the preparation of the soil for maize, but the period of germination was excellent and the weather was favourable in the first stages of growth; at the middle of July crop conditions which were very good almost throughout northern and central Italy ensured the high yields obtained. Austria, Czechoslovakia and Greece (especially the latter) had lower yields in 1937 than in 1936 but above the average.

Production in French Morocco was exceptionally low owing to drought in the middle of July.

On the whole, the thirteen countries considered have had very favourable yields, higher than in 1936 and above the average.

IV. PRODUCTION OF MAIZE IN THE NORTHERN HEMISPHERE

As a result of the acreage of these thirteen countries being rather higher than last year and only a little below the average, and owing to the very favourable unit yields, the production of the northern hemisphere is very large. The success of the production of certain countries in 1937 will have a considerable effect not only on the internal economy of the various countries but also on international trade in maize and fodder cereals. For example, the United States with their large production this year are likely, from being importers as they were in the last two seasons, to become exporters. Similarly Yugoslavia and Hungary in the commercial season of 1937-38 will be large sources of supply for world demand for maize.

The total production of the United States according to the latest estimates is as high as 2,651 million bushels against only 1,529 in 1936 and 2,334 in the previous five-year average This large production will affect both internal consumption and world trade. In comparison it should be noted that the largest production of the United States in the last thirteen years was 2,927 million bushels in 1932, and the smallest in 1934 with 1,478 (*see* the table for the United States in the next section). This year's crop therefore is not an absolute record, but it is a very large production when compared with the outturns of the last six years, among which were two exceptionally small crops.

The Danubian group shows a considerable production which is however about 46 million bushels lower than the extremely high figure of 1936, as a result solely of the poor crop in Romania, and production is about 40 millions above the average. Two of the countries in the group, namely Yugoslavia

3. - *Production of maize in the northern hemisphere.*

(Millions of bushels of 56 lb)

	1937	1936	Average 1931 1935
United States, Canada	2,057 5	1,535 4	2,340 3
Danubian countries			
Romania, Yugoslavia, Hungary, Bulgaria	515 7	561 3	475 5
European maize-importing countries			
Austria, Greece Italy, Czechoslovakia	162 6	150 2	126 5
Manchukuo, Turkey	113 2	110 5	87 5
French Morocco	5 2	11 9	6 1
General total . . .	3,454 2	2,369 3	3,035 9

and Hungary, show this year absolute records for the last thirteen years The production of Bulgaria on the other hand is lower than last year and the average

In the maize importing group of counties, Italy and Czechoslovakia have record productions, the former is due solely to the very high yield, and the latter to a large increase in acreage and also to a high unit yield The production of this group will be about 12 million bushels above last year and more than 36 millions above the average, mainly as a result of the increase in Italy

The productions of Manchukuo and Turkey taken together is 2 5 per cent higher than last year and 29 5 per cent above the average As was stated above, production in French Morocco is very low, being hardly 44 1 per cent of last year's figure This country will need to import in the 1937-38 season From Yugoslavia have already been reported the first demands for maize for French Morocco on that market

On the whole, the thirteen countries show a total production of 3,454 millions bushels which is 13 8 per cent above the average and is as much as 45 8 per cent higher than last year's poor crop This percentage is likely to be very little revised when the other countries of the northern hemisphere are added owing to the very large relative importance of the countries already considered in the production of the northern hemisphere as a whole

V — INTERNATIONAL TRADE IN MAIZE

A) *Exporting countries and centres.*

At the present time the world maize market is dominated by two important influences: first, the large United States crops representing a reserve for world trade in case of failure in Argentina and secondly, the heavy maize exports from Argentina during the first half of the Argentine season, causing a sharp reduction in the exportable stocks of that country.

As is seen from the following table, the United States, that in 1933-34 was an exporter of small quantities, became more and more an importer until the very large imports of the 1936-37 season. In fact, during the eleven months 1 November 1936 to 30 September 1937, the United States imported as much as 95.4 million bushels becoming the second largest importer after the United Kingdom. It is clear that Argentina will have to find other markets for the large amounts that in recent years she has been sending to the United States. Fortunately an increase in maize consumption is reported from various parts of the world. The foregoing table also illustrates the elasticity of demand for maize in the United States. After the crop of 2,397 millions bushels harvested in October-November 1933, the United States exported small quantities month by month until the disastrous crop of 1934. From September 1934 the United States imported large quantities of maize from Argentina, totalling 40.7 million bushels. It is interesting to note that although the 1935 crop was comparatively large, being 2,297 million bushels the country still had to import 24.0 million. Only in June 1936 did exports slightly exceed imports. The second disastrous crop in 1936 obliged the United States to import heavily and continuously. Monthly imports of last season varied between 4.4 million and 15.7 million bushels. Notwithstanding the approach of the plentiful crop of this year, imports for September exceeded exports by 5.7 million bushels, a sign of the shortage of fodder grains.

4. — *Excess of imports over exports of maize in the United States in the last 4 commercial seasons (1 November-31 October).*

(1000 of bushels of 56 lb.)

MONTHS	1936/37	1935/36	1934/35	1933/34
November	6,260	1,642	295	— 1,197
December	4,421	2,083	1 059	— 346
January	5,393	1,854	1,854	— 110
February	8,641	551	1,791	— 201
March	9 437	1,153	3,283	— 189
April	6,208	1 039	1,429	— 138
May	8,598	862	3 027	— 315
June	13,810	— 154	6,118	— 126
July	15 724	1,224	5 642	— 449
August	11 185	1,492	8,508	— 220
September	5,728	4 142	2,984	126
October		8 098	4,681	244
Total	(1) *95,405*	*23,986*	*40,671*	— *2,921*

(1) 11 months.

In order to bring out the relation between maize trade and production in the United States, the following table has been prepared showing the distribution of exports for periods of six months and the monthly averages for the years 1925 to 1936.

It will be noticed that there is no correspondence between production and exports. Exports were greatest, not after the record crop obtained in 1932, but after the 1928 crop. In 1930, after a production of 2,080 million bushels the

5. — *Maize production and net exports of United States.*

(1000 of bushels of 56 lb.).

Crop year and commercial season (November-October)	Production in Sept.-Oct. of the first year indicated	Net exports or net imports (+)						
		in the first six months after the harvest (November-April)		in the remaining six months up to the end of the season (May-October)		Total for the season		
						Absolute data		% production = 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1937 (1937/38)	2,651,000	...	...	...	...	...	...	...
1936 (1936/37)	1,529,327	+ 40,361	+ 6,728	1) + 55,045	+ 9,173	2) + 95,406	+ 7,949	+ 6.2
1935 (1935/36)	2,296,669	+ 8,323	+ 1,386	+ 15,665	+ 2,610	+ 23,988	+ 2,000	+ 1.0
Average 1930-1934 (1930/31-1934/35)	*2,291,025*	+ *358*	+ *59*	+ *4,582*	+ *764*	+ *4,940*	+ *413*	+ *0.2*
1934 (1934/35)	1,478,027	+ 9,712	+ 1,618	+ 30,959	+ 5,161	+ 40,671	+ 3,390	+ 2.8
1933 (1933/34)	2,396,525	2,181	362	740	122	2,921	244	0.1
1932 (1932/33)	2,926,871	3,925	654	2,571	429	6,496	539	0.2
1931 (1931/32)	2,573,265	1,283	213	3,834	638	5,117	425	0.2
1930 (1930/31)	2,080,437	524	87	902	150	1,426	118	0.1
Average 1925-1929 (1925/26-1929/30)	*2,629,601*	*15,960*	*2,661*	*3,705*	*618*	*19,665*	*1,638*	*0.7*
1929 (1929/30)	2,521,032	4,811	803	1,610	268	6,421	531	0.3
1928 (1928/29)	2,665,516	35,628	5,937	4,492	748	40,120	3,342	1.5
1927 (1927/28)	2,616,120	13,622	2,272	4,756	791	18,378	1,535	0.7
1926 (1926/27)	2,546,972	9,976	1,661	240	39	10,216	850	0.4
1925 (1925/26)	2,798,367	15,767	2,630	7,421	1,244	23,188	1,933	0.8

1) 5 months May-September inclusive. 2) 11 months November 1936–September 1937 inclusive.

United States still exported while, after the larger crop of 2,297 million bushels harvested in 1935, there was an import excess of 24.0 million bushels.

Exports represent a very small proportion of production, as may be seen from the last column of the table above. The only constant feature noticeable is that, generally, exports are larger in the first six months following the harvest while imports became prominent towards the end of the commercial year. The appearance of the United States as an exporter thus occurs, as a rule, in the second half of the Argentine year when prices on world markets are usually well maintained by the decrease in Argentine supplies.

This year's crop is about equal in size to that of 1928 but there is a great difference in the outturns of the crops obtained in the preceding years. The crop of 1928 followed three plentiful harvests but that of 1937 came after two disastrous seasons (1936 and 1934). In 1937, however, livestock numbers were 10 per cent. below the average. Consequently, supplies of feed grains (maize, oats, barley and sorghum) per unit of livestock will be very large in the commercial year 1937-38, particularly in the Corn Belt States, where livestock was much reduced in the drought years.

The expansion which will certainly occur in the rearing of pigs, meat and dairy cattle and poultry as a result of the plentiful supplies of coarse fodder and maize will have an effect on maize export prospects in the United States in 1937-38. Moreover, it is expected that the Government will intervene with advances to maize growers for the purpose of regulating supply and maintaining prices.

In the light of the evidence of previous years and the specific features of the year, it may be expected that the United States will export substantial quantities if demand proves to be considerable and if prices are at a fairly high level. In the absence of these conditions, supplies in the United States may be absorbed by domestic consumption but at prices considerably below those of last year

The contributions of the various countries to world maize exports are indicated in the following table.

6. — *Net exports of maize of the principal exporting countries and groups of countries, by commercial seasons (May-April).*

(1000 of bushels of 56 lb)

COUNTRIES AND GROUPS OF COUNTRIES	1937/38 September						1936/37		1935/36		Average 1930/31-1934/35	
	September	August	July	June	May	Monthly average	Total for the year	Monthly average	Total for the year	Monthly average	Total for the year
Argentina	34,314	30,869	31,703	34 341	35,369	30 231	362,777	25,468	305,614	21,250	255,006
Danubian countries 1)	2,386	4 023	5 165	6 535	6 748	3,959	47,506	2,132	25,586	5,441	65,297
Indo China	.	2,146	1 846	1,307	819	1 592	19,106	1 325	15 897	789	9,468
Java and Madura		209	91	295	768	605	7 263	229	2,744	265	3,181
Union of South Africa	8,291	3 693	3,705	1 901	0	8	94	1 007	12,090	902	10,822
Total		*40,940*	*42,510*	*44,379*	*43,704*	*36,395*	*436,746*	*30,161*	*361,931*	*28,647*	*343,774*

1) Romania Yugoslavia Hungary and Bulgaria

Throughout the period under review, Argentina maintained its position at the head of the exporting countries, followed at a great distance by the four Danubian countries taken together The third place in recent years has been held by Indo-China whence exports are directed mainly to France and where maize growing has developed steadily under the influence of remunerative prices Exports from the Union of South Africa, as a result of the light crops of recent years, show wide variations from year to year

A feature of the year 1937-38 is the large montly shipments from Argentina which reached 35.4 million bushels in May of this year The monthly exports of the Danubian countries are also remarkable for they surpass the average monthly exports of the five years 1930-31 to 1934-35, and those of the two years previous to the current year with the exception of August and September, owing to the prohibition of exports from Romania. The South African contribution is expected to be large, for the current crop in this country is the largest of recent years, reaching 88.6 million bushels against an average in the preceding quinquennium of only 60.7 millions.

The total monthly exports of the first five months of the current Argentine year from the eight countries considered considerably exceeded the monthly averages of both the quinquennium and the two previous years

In view of the special position occupied by Argentina in the world maize trade it would be useful to examine the maize production and trade of this country The main feature is that it exports more than 80 per cent of its total production. Notwithstanding the increase in domestic consumption, the volume of exports has expanded continuously during the last 13 years The average exports of the five years 1925-26 to 1929-30 were 223.3 million bushels and rose to an average of 255.0 millions in the following five years Greatest exports were recorded in 1931-32 after the bumper harvest of 1931 In most years, the shipments of the first six months following the harvest were much heavier than those of the second half of the year

7. — *Maize production and exports of Argentina.*

(1000 bushels of 56 lb)

Crop year and commercial season (May April)	Production in April-May of the first year indicated	Exports						
		in the first six months after the harvest (May October)		in the remaining six months up to the end of the season (November April)		Total for the season		
						Absolute data		% production = 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1937 (1937/38)	359,619	197,669	32,945	1) 53,549	(8,925)			
1936 (1936/37)	397,622	168,454	28 076	194 323	32,387	362,777	30 231	91 2
1935 (1935/36)	451,950	166 722	27,786	138,892	23,149	305 614	25 468	67 6
Average 1930 34) (1930/31 1934/35)	*304,862*	*144,196*	*24,032*	*110 811*	*18 469*	*255 007*	*21 250*	*83 6*
1934 (1934/35)	256 919	122 424	20,405	89,426	14 905	211,850	17 653	82 5
1933 (1933/34)	267,765	109,397	18,232	106,452	17,743	215,849	17,987	80 6
1932 (1932/33)	299,334	154,510	25,751	76,647	12 775	231,157	19,263	77 2
1931 (1931/32)	419,668	234,664	39,109	159 935	26,656	394,599	32,885	94 0
1930 (1930/31)	280,623	99,984	16,665	121,594	20 267	221,578	18,464	79 0
Average 1925 29 (1925/26 1929/30)	*278,560*	*139 069*	*23,176*	*84,237*	*14 039*	*223,306*	*18,609*	*80 2*

1) Quantity exportable on 1 November 1937 calculated after taking into account the export surpluses estimated by the Argentine Government on 22 October

With regard to the current year, exports will come from an outturn, according to the latest estimate of 359.6 million bushels and from the small supplies carried over from the previous year According to the official estimate of 22 October, the stocks left over from the previous season on 1 April this year were 18.6 million bushels, so that total stocks on that date were 378 2 million bushels Total stocks on 1 May were 347.7 million, for during April Argentina exported 30.5 million bushels. Deducting from this total net exports of 197.7 million bushels from 1 May to 31 October this year and internal requirements of 96.5 million, our estimate gives total exportable stocks on 1 November of only 53.5 million bushels

This figure is extremely low compared with corresponding statistics for previous years; divided among the six remaining months, it is hardly 8.9 million bushels a month, and will be the poorest supply from Argentina in recent years. There were however also small exports in the second half of the seasons 1925-26 and 1928-29, when total exports in the six months November to April were respectively 54.0 million and 74.8 million bushels.

On the basis of these provisional data it may said that total exports from Argentina could attain a maximum of only 251.2 million bushels. The increase in the internal consumption of the country is explained by the prolonged drought which compelled stock raisers to make more use of maize than usual.

World demand is aready turning with greater interest to the second source of supplies, namely the Danubian countries In this region good stocks are available In fact, Romania, despite the poor production this year, which has induced the Government to prohibit exportation, still has available large stocks from the 1936 and also this year's crop. Opinions vary on the total available for export, but it seems reasonable to estimate that Romania will be able to export 16 to 20 million bushels in the 1937-38 season The crop this year however has a very high degree of humidity, so that the Government has strictly forbidden the transport of maize with a degree higher than 14 per cent.

8. — *Maize production and net exports of Danubian countries (Romania, Yugoslavia, Hungary and Bulgaria).*

(1000 bushels of 56 lb)

Crop year and commercial season (November-October)	Production in Sept -Oct of the first year indicated	Net exports						
		in the first six months after the harvest (November-April)		in the remaining six months up to the end of the season (May October)		Total for the season		
						Absolute data		% production = 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1937 (1937/38)	515 682							.
1936 (1936/37)	561 281	33,278	5,546	1) 24,857	4,971	2) 58,135	5,285	
1935 (1935/36)	426 554	12 385	2 064	14 228	2,371	26 613	2,218	6 2
Average 1930 34 (1930/31 1934/35)	*470,261*	*36,369*	*6 061*	*23 474*	*3 913*	*59,843*	*4,986*	*12 7*
1934 (1934/35)	507,393	24,948	4 157	13 200	2 201	38 148	3,177	7 5
1933 (1933/34)	428 833	26 412	4,401	19,220	3 205	45 632	3,803	10 6
1932 (1932/33)	555,273	58 446	9,740	41,758	6 960	100 205	8,350	18.0
1931 (1931 32)	459,556	42,349	7 059	25,672	4 279	68 021	5,669	14.8
1930 (1930/31)	400,248	29 692	4,949	17 519	2 921	47,211	3 933	11.8
Average 1925-29 (1925/26 1929/30)	*395,701*	*33,089*	*5,516*	*23 133*	*3 854*	*56,222*	*4 685*	*12 4*

1) 5 months May-September 1937 — 2) 11 months November 1936-September 1937

The largest exporter in the Danubian area this season will be Yugoslavia, which produced a record crop immediately after the large 1936 crop This year the parts of the country that generally produce only a deficient maize crop, have also had a large crop. This is a factor that greatly affects the volume of exportable supplies. It is officially estimated that exportable stocks will reach the figure of 35 million bushels. Already in October many inquiries were being made for Yugoslavian maize by the Scandinavian and central European countries and French Morocco.

Hungary also has large supplies available for export this season. In the 1934-35 and 1935-36 season this country was a large maize importer owing to poor crops. In the 1936-37 season Hungary resumed her role of exporter after the large 1936 crop. This year's record crop will enable her to export even larger quantities than last season An exportable surplus of 16 to 20 million bushels does not seem to be an exaggerated estimate for Hungary. This country also is already exporting large quantities to the Scandinavian countries, particularly overland via Stettin and Hamburg To estimate the surplus for export it should be noted that the total production of the 4 Danubian countries is 515.7 million bushels against 561.3 million in 1936 In this region also there is no very close relation between production and export, as internal demand is very elastic However, the size of the crop fully justifies the estimates of the possibilities of export

Indo-China, the Union of South Africa and the Netherlands Indies will also be able to supply considerable quantities to offset the poor supply available from Argentina during the six months November 1937 to April 1938

In view of the uncertainty about the trend of consumption in the near future, it is not possible to foresee the extent to which trade will have to have recourse to the stocks of the United States, but certainly the latter constitute a providential reserve for the world consumption of fodder

B) *Importing countries*

For the purpose of examining the international trade in maize from the point of view of importation we re-group the 19 main importing countries into two groups—first, the non-maize-producing countries and second the maize producers which are also importers (*see* the names of the countries in table 11)

Maize imports into the first group are largely determined by their own production of barley and oats, as these two cereals are the main substitutes for maize in feeding livestock In the second group besides the production of barley and oats a strong influence on imports is the home production of maize itself.

The production of barley in the non-maize-producing countries in 1937 was slightly higher than that of 1936 and also that of the five-year averages 1925-29 and 1930-34; their oats production in 1937 which was higher than in 1936 is below the two averages and marks a slow decline in oats production in these countries Consequently, on the basis of the relative production of barley and oats in this group of countries the demand for maize should be maintained at the same level as in 1936-37 Similar conclusions may be drawn from the figures on barley and oats production in the maize producing countries The production of maize in this group, moreover, marks a record mainly due to the large crop in Italy An examination of the statistics of production in this country shows a slow but sure increase in this crop, that should in the various countries cause a diminution or cessation of imports from abroad This economic tendency is found in almost all the maize producing and also the importing countries. In the present situation a further increase will be achieved rather by improvements in technique, increasing unit yields, than by an extension of the acreage under maize.

9. — *Production of maize, barley and oats, during the last 13 years in the 19 principal maize-importing countries, by groups of countries* 1).

(Millions of bushels of 56 lb for maize, of 48 lb for barley and of 32 lb for oats)

Products and groups of countries	1937	1936	1935	Average 1930-34	1934	1933	1932	1931	1930	Average 1925 29
Maize										
I group 1) .	—	—	—	—	—	—	—	—	—	—
II group 1) . .	227 1	226 2	195 0	205.6	225 7	192.0	213 9	177 3	219 0	184 2
Total	*227 1*	*226 2*	*195 0*	*205.6*	*225 7*	*192 0*	*213 9*	*177 3*	*219 0*	*184.2*
Barley										
I group 1)	265 4	261 0	272 9	256 2	260 9	262 7	261 0	249 1	248 1	254.5
II group 1)	427 7	408 0	456 2	474 1	462 5	450 9	512 0	432 1	513 1	490 1
Total .	*693 1*	*669 0*	*729 1*	*730.3*	*723.4*	*713 6*	*773 0*	*681 2*	*761 2*	*744.6*
Oats										
I group 1)	800 7	779.2	792 5	849 1	800 9	910 5	909 0	822 9	813 5	898.8
II group 1)	1,002 8	969 6	1,103 2	1,108.9	1,047 6	1,152 6	1,176 2	1,037 6	1 130 5	1,160 6
Total	*1,803 5*	*1,748 8*	*1,895.7*	*1,958 0*	*1,848 5*	*2,063 1*	*2,085 2*	*1 860 5*	*1,944 0*	*2,059 4*

1) For countries contained in the two groups see table 11 on page 891

To resume, the production of maize, barley and oats in 1937 in the 19 largest importing countries is large enough to make unnecessary in 1937-38 an increase in maize imports compared with 1936-37. It must be added that these factors, though very important, are not the only influences determining the volume of maize imports. The large production of potatoes and sugar-beet in various countries provides a considerable reserve of fodder that may have the effect of reducing maize imports

To make the situation of the 19 maize importing countries clearer, we have prepared the following table showing their apparent maize, barley and oats consumption on the average of 1930-31 to 1934-35 and in the last two seasons.

In view of the fact that the 1937 maize, barley and oats production in these countries under consideration is not very different from that of last year, the consumption of these three cereals in the 1936-37 season enables us to estimate approximately the consumption requirements for the 1937-38 season. The consumption of maize in the first group (non-maize-producing countries) is clearly very variable because it is a function not only of supplies but also of the price of maize in relation to the prices of other fodder cereals During the economic depression, the reduction in maize imports was more or less general with the exception of the United Kingdom. In the 1936-37 season the consumption of this group was larger than in the five-year average amounting to 301 1 million bushels against 253.0 millions. The maize producing group consumed in the 1936-37 season 313.9 million bushels against 308.7 with the difference that the average quantity imported was larger than that of last season. For barley the percentage of the last two seasons shows on the average a decrease in consumption in both groups. Owing to the shortness of the series of statistics no reliable conclusion can be drawn on the tendency to reduce the consumption of barley. This tendency may, however,

10. — *Apparent consumption of maize, barley and oats (production + net imports) in the 19 principal maize - importing countries, by groups of countries 1).*

(Millions of bushels of 56 lb. for the maize, of 48 lb. for barley and of 32 lb. for oats).

Products and groups of countries	1937/38	1936/37			1935/36			Average 1930/31 to 1934/35		
	Production 2)	Production 2)	Net import 3)	Apparent consumption	Production 2)	Net import 3)	Apparent consumption	Production 2)	Net import 3)	Apparent consumption
Maize:										
I group 1)	—	—	301.1	301.1	—	234.0	234.0	—	253.0	253.0
II group 1)	227.1	226.2	4) 87.7	313.9	195.0	5) 79.1	274.1	205.6	103.1	308.7
Total . . .	*227.1*	*226.2*	4) *388.8*	*615.0*	*195.0*	5) *313.1*	*508.1*	*205.6*	*356.1*	*561.7*
Barley:										
I group 1)	265.4	261.0	79.0	340.0	272.9	79.7	352.6	256.2	103.7	359.9
II group 1)	427.8	408.0	4)- 10.4	397.6	456.2	5)— 4.3	451.9	474.1	2.6	476.7
Total . . .	*693.2*	*669.0*	4) *68.6*	*737.6*	*729.1*	5) *75.4*	*804.5*	*730.3*	*106.3*	*836.6*
Oats:										
I group 1)	800.7	779.2	18.0	797.2	792.5	13.3	805.8	849.1	38.1	887.2
II group 1)	1,002.8	969.6	4) 12.0	981.6	1,103.2	5) 7.5	1,110.7	1,108.9	19.0	1,127
Total . . .	*1,803.5*	*1,748.8*	4) *30.0*	*1,778.8*	*1,895.7*	5) *20.8*	*1,916.5*	*1,958.0*	*57.1*	*2,015.1*

1) For countries contained in the two groups see table 11 on page 891 — 2) The figures of production for maize relate to the crops harvested in September-October and those for barley and oats to the crops harvested in June-July of the first of the years indicated — 3) Net imports in the 12 months from August of the first year indicated to July of the second. — 4) For 2 months in Spain and for 10 in Japan — 5) For 11 months in Spain.

be deduced from the very slight decrease in total production of these 19 countries compared with the averages of 1925-29 and 1930-34. In view of the excellent opinion that livestock breeders have of the nutritive value of this cereal this tendency seems, however, to be unlikely to continue.

With regard to oats, however, it is certain that there is a tendency to reduce the consumption. The total consumption of oats in these countries in the 1936-37 season was only 1,778.8 million bushels against 1,916.5 million in 1935-36 and an average of 2,015.1 million. The comparison of the two averages of oats production, namely 1925-29 and 1930-34, shows a decrease of about 101 million which certainly cannot be accidental.

After the general examination of maize consumption let us look a little more closely into the course of trade in maize in the main importing countries.

The largest importer in the world is always the United Kingdom which in the 1936-37 season imported the new record quantity of 144.1 million bushels out of a total of 361.8 for the 19 countries under consideration; it is thus takes about 40 per cent. of the total. The average imports in the first five months of the present season are lower than the monthly average of the 1936-37 season, and rather higher than the five-year average; therefore a decrease in the imports into the United Kingdom in the present season may be forecast, unless imports in the second half of the season increase. As was stated before, the second largest importer in the world last season was the United States for special and quite exceptional reasons.

II. — *Net imports of maize into the 19 principal maize - importing countries during the last seven Argentine commercial years (May-April) and during the first five months of this year.*

(1000 bushels of 56 lb)

COUNTRIES AND GROUPS OF COUNTRIES	1937/38					1936/37		1935/36		Average 1930/31-1934/35	
	September	August	July	June	May	Monthly average	Total for year	Monthly average	Total for year	Monthly average	Total for year
I — *Countries which import but do not produce maize*											
1 - United Kingdon	10,511	9 622	9,630	9,149	9 094	12 012	144,144	11,399	136,794	8,839	106,063
2 - Netherlands	1,661	2,331	3,327	2,401	2,370	3,108	37 294	3,001	36 018	4,374	52,494
3 - Germany	9 637	7,842	7,504	7,047	4,980	1,148	13,775	741	8 889	1,582	18,983
4 - Belgo Luxemburg Union	2,398	2 559	2 724	2,791	2,547	3,009	36,109	2,798	33 581	2,452	29,420
5 - Denmark	1,819	1 146	1,622	1,964	1,992	1,746	20,956	788	9 452	1,889	22,672
6 - Irish Free State	933	1 941	1,165	622	1,197	846	10,153	892	10,700	1,373	16,480
7 - Norway	567	197	394	575	433	496	5,953	456	5,472	510	6,122
8 - Sweden	299	169	850	783	720	447	5 366	194	2 327	720	8,637
Total of 1st group	*27,825*	*25,807*	*27,216*	*25,332*	*23,333*	*22,812*	*273 750*	*20 269*	*243,233*	*21 739*	*260,871*
II — *Countries which import and produce maize*											
1 - Italy	606	1,098	811	354	346	367	4 405	992	11,901	1,175	14,098
2 - France	3,004	1,374	1,508	1,650	1,146	2,410	28,920	1,934	23,212	2,967	35,605
3 - Spain 2)	. .	.	.	. .	.	132	1) 264	292	3 504	466	5 594
4 - Czechoslovakia	181	346	457	299	240	266	3,189	344	4,126	1,032	12,389
5 - Portugal	39	315	102	87	24	41	496	52	622	204	2,453
6 - Greece	63	94	201	122	154	220	2 642	190	2,279	178	2,138
7 - Austria	858	1 110	1,264	1 272	1,323	1,037	12 448	1,086	13,035	1,452	17,424
8 Poland	12	28	71	201	0	0	0	0	0	24	287
9 - Switzerland	307	213	319	280	122	359	4 307	305	3,665	382	4,590
10 - Canada	2 807	2 524	2,016	319	697	1 531	18 369	578	6 941	628	7 531
11 - Japan 2)		.			1 531	1 069	12 826	685	8 220	98	1 181
Total of 2nd group	*7 877*	*7 102*	*6,749*	*4,584*	*4 052*	*6 231*	*74 776*	*5,481*	*65 781*	*8,042*	*96 515*
GENERAL TOTAL	35,702	32.909	33,965	29,916	27,385	29,043	348,526	25,750	309,014	29,781	357,386

1) 2 months — 2) Not included in the totals

The United States in the period May 1936 to April 1937 imported 56.0 million bushels, the largest monthly average being in March 1937. Next to the United States come the Netherlands and the Belgo-Luxemburg Union which imported larger quantities, at 37.3 million bushels and 36.1 respectively. The import movement in the first months of the present season lead us to expect imports into these countries to be about equal to those of 1936-37. In the 1936-37 season France also imported considerable quantities though they were below the average. Very large increases occurred in Canada and Japan. Canada imported 18.4 million bushels against an average of 7.5 millions and Japan 12.8 millions against only 1.2 millions of bushels.

Imports into Germany in 1936-37 being only a little higher than in 1935-36 but below the average, did not provide any reason to expect a larger quantity in the present season. But in fact, the large imports into this country in the first months of the 1937-38 season which totalled 5.0 million bushels in May and reached 9.6 millions in September places Germany in the second position amongst importing countries, immediately behind the United Kingdom. The heavy German imports constitute an increase in demand on the world market. In the first half of the season Germany imported mostly Argentine maize, but in the second half will probable import from the Danubian region, and perhaps also from the United States, which between them will have the largest supplies available. No precise estimate of Germany's requirements in the second half of the season can be made. The large imports are undoubtedly connected with the introduction of the compulsory mixture of maize flour with wheat flour for bread-making (Regulation of 4 March 1937). The quota of maize must not be less than 7 per cent of the quantity of flour used

As regards probable imports in the second half of the season, it is to be noted that Germany has had a record production of potatoes, and it will be thus able to supply large quantities of additional fodder. The manufacture of dried potatoes will supply this year large quantities of fodder, with a nutritive value about four times that of potatoes in their natural state, for the consumption of which official circles are making intense propaganda.

The compulsory mixture of maize flour was also introduced in Italy and Portugal. In Italy the proportion of maize flour is 5 per cent from 1 to 30 November and 10 per cent from 1 December The influence of new regulations are shown in a stimulus in demand on the internal market particularly for barley and rye White maize is also much in demand because it is considered to be more suitable for mixing The increase in maize consumption in Italy will probably have no repercussions on the world market because Italy this year has a record crop of this cereal.

The Portuguese Government have made compulsory the mixture of maize and rye flour with wheat flour The quota of maize and rye flour varies from one province to another, and for second quality bread is between 11.1 per cent and 12 5 per cent In the districts where there is only one quality the quota is 12 per cent In case of need, the Ministry of Agriculture will be able to raise the latter quota for the single quality of bread up to 20 per cent. Imports during the first months of the present season lead us to expect a gradual increase in maize imports into Portugal

Owing to the poor fodder crop of this year, Poland, which in recent years had almost ceased to import maize, this season has begun to import large quantities again.

In the preceding table of the leading maize importers Finland does not appear because before 1933 her annual imports did not amount to as much as 2 millions of bushels but for several years there has ocurred a slow but steady increase in maize imports To explain the economic reasons for her importation of maize, in the accompanying table the production of barley and oats in the last 13 years and the import of maize are shown.

As maize serves mainly as a fodder for pigs and poultry it is clear that the increase of the number of pigs and poultry is the reason for the increased importation of maize. A strict parallelism between the increase of maize imports and the number of pigs and poultry may be noted. The maximum of maize imports ocurred in 1935-36 with 3.9 million bushels, after the poor barley and oats crop of that year.

12. — *Maize imports into Finland in relation to the home production of barley and oats and the numbers of pigs and poultry.*

Year or commercial season (1 August-31 July)	Production		Maize imports during the 12 months 1 August-31 July	Number of pigs on 1 September	Number of poultry over 6 months old on 1 September	
	Barley	Oats			Fowls	Other
	1,000 bushels of 48 lb.	1,000 bushels of 32 lb	1,000 bushels of 56 lb.	1,000	1,000	1,000
1937 (1937/38)	8,143	45,208	1) 366	...	...	...
1936 (1936/37)	8,676	44,864	2,878	459	2,879	9
1935 (1935/36)	7,620	41,950	3,913	510	2,844	9
Average 1930 34 (1930/31 1934/35)	*8,243*	*46,541*	*1,438*	—	—	—
1934 (1934/35)	9,581	53,483	1,024	496	2,975	9
1933 (1933/34)	8,199	43,782	2,953	435	3,009	9
1932 (1932/33)	8,217	46,125	1,886	414	2,741	7
1931 (1931/32)	7,606	46,138	925	446	2,227	7
1930 (1930/31)	7,569	43,176	402	395	1,907	5
Average 1925-29 (1925/26-1929/30)	*6,485*	*39,904*	*193*	—	—	—

1) 2 months· August and September 1937

VI. — MAIZE PRICES.

To provide an idea of the course of maize prices on world markets in recent months, we give below the monthly quotations on the Liverpool-London market where there are continuous arrivals of maize from all producing centres. In view of the fact that maize is a substitute for barley and oats and *vice versa*, the prices of the latter cereals are also given in gold for purposes of comparison with the prices ruling before the devaluation of sterling.

13. — *Average monthly prices of maize, barley and oats.*

	Liverpool-London (gold prices in shillings and pence per quintal)			Chicago (in cents per 56 lb)
	Maize La Plata Yellow	Barley Canadian N 3	Oats La Plata	Maize Yellow N 3
October 1937	7/7	10/9	7/–	67
September »	7/6	10/1	6/11	105
August »	7/3	9/10	6/10	104
July »	7/4	11/3	7/3	119
June »	7/–	10/6	7/3	121
May »	7/3	11/2	7/5	135
October 1936	6/1	8/6	6/1	108
September »	6/4	8/3	6/2	113
August »	6/9	8/10	6/6	113
July »	5/7	7/4	5/10	90
June »	5/1	5/11	5/8	64
May »	4/11	5/9	5/11	63
October 1935	4/7	5/6	7/1	83
September »	4/5	5/7	6/9	83
August »	4/2	5/3	5/9	82
July »	4/2	5/4	5/4	84
June »	4/5	5/10	5/5	84
May »	4/6	6/5	5/7	87

The table also shows maize prices at Chicago which generally reflect the situation in the United States, which, though it is the world's largest producer, consumes nearly all its production. In the season which began on 1 November 1937, prices at Chicago will have an important influence on all world markets in view of the possibility of the United States becoming an exporter of this cereal.

The prices of the three cereals on the Liverpool-London market moved this year on a much higher level than that of 1936 and 1935. It is enough to point out that, while the gold price of maize was 4/7 in shillings and pence per quintal in October 1935, and 6/1 in October 1936, the price had reached 7/7 in October 1937. Prices of the other cereals moved similarly Among the comparisons offered by the table, it is worth noting that, between July and October of this year, oat prices, contrary to the the general trend were lower than maize prices

Prices at Chicago were maintained fairly high up to September of this year owing to the shortage of supplies From October, as a result of the more plentiful supplies, prices fell rapidly

In the first half of November, the fall continued, reaching, on the average 55 cents per bushel This great reduction in prices is now the subject of an enquiry by the United States Government which will probably take steps to prevent an excessive fall in farm income

V. DESMIREANU.

Current information on maize.

Germany: According to the most recent estimate, the area cultivated to maize for seed this year is about 94,600 acres against 47,700 in 1936 and 14,900 on the average of the five years ending 1935, percentages, 198 3 and 633 3

Bulgaria The variable but generally damp, warm weather of the first half of October encouraged the growth and ripening of maize

The finer and drier weather of the second fortnight assisted ripening and was favourable for the harvesting and saving of the crop, which were finished at the end of the month The forecasts made last month for an average or rather poor crop remain unaltered.

Greece The prolonged drought of last summer adversely affected the growth of maize and only the last crops benefited from the recent rains Despite the increased area, production is expected to be much below that of last year, though larger than crops of earlier years

Hungary· Harvesting and bringing in of maize was almost completed by 26 October. The ears are well grown and the grain healthy and full

Italy. It was confirmed on 15 October that spring maize had yielded well in all districts Bad weather hindered the process of drying the crop and conditions were unfavourable for the ripening of summer maize, but the latter is on the whole in good condition

Portugal: In September maize on irrigated lands was favoured by good weather. Forecasts of a good crop were confirmed, even though crops on unirrigated lands were estimated as poor.

Romania: By the end of October the maize harvest was finished. It was carried out under good conditions

Yugoslavia. The wet, cool and variable conditions of the first three weeks of October were unfavourable for the drying of the spring-sown maize and delayed the

Area and production of maize.

COUNTRIES	AREA					PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	219	207	195	105.4	112 4	2,528	2,547	2,423	4,514	4,549	4,327	99.2	104.3
Austria	159	158	158	100.9	100 4	3.446	3.767	2.990	6.153	6.727	5,340	91.5	115.2
Bulgaria	1,653	1.653	1.757	100 0	94.1	18,491	19,213	19,952	33,020	34,310	35,629	96.2	92.7
*Spain	...	...	1,076	...	...	...	...	15.640	...	...	27,929	...	...
France	...	913	844	...	...	...	12,515	11,253	...	22,348	20,095	...	...
Greece	1) 652	1) 639	1) 614	102 0	106.1	5,088	6,326	4,616	9,085	11,297	8,244	80 4	110.2
Hungary	2,956	2,810	2,812	105.2	105.1	59,347	57,168	40,898	105,977	102,086	73,033	103.8	145 1
Italy 2)	3,174	3,235	3,246	98.1	97.8	74,957	59,992	53,968	133,853	107,128	96,372	111.7	128.1
Italy 3)	458	445	344	102 9	133.0		7,133	4,568		12,737	8,156		
Poland	228	218	232	104.7	98.2	...	2,314	2,063	...	4,132	3,684	...	...
Portugal	...	1,057	1,014	...	...	...	6,767	7,715	...	12,084	13,778	...	...
Romania	12,795	12,999	12,124	98.4	105.5	93,371	123,724	118,327	166,734	220,936	211,299	75.5	78.9
Switzerland	...	2	2	...	...	...	47	55	...	83	98	...	...
Czecho-slovakia 4)	239	211	6) 205	113.1	116.3	4,930	4,163	6) 3,060	8,804	7,433	6) 5,464	118.4	161.1
Czecho-slovakia 5)	217	192	6) 160	112 6	135 4	2,636	2,760	6) 1,614	4,707	4,928	6) 2,883	95 5	163.3
Yugoslavia	1) 6,529	1) 6,765	1) 6,509	96.5	100 3	117,572	114,211	87,114	209,951	203,949	155,561	102.9	135.0
Total Europe	...	*31,504*	*30,216*	...	...	...	*422,647*	*360,616*	...	*754,727*	*643,963*	...	...
*U. S. S. R.	7) 6,618	7) 6,799	9,181	97.3	72.1	...	...	86.463	...	...	154,398	...	...
Canada	166	164	145	101 0	114.1	3,636	3,406	3,374	6,492	6,083	6,025	106 7	107.8
United States	96,146	92,829	102,079	103.6	94.2	1,484,560	856,423	1,307,192	2,651,000	1,529,327	2,334,271	173 3	113 6
*Mexico	...	...	7.786	...	...	...	...	41,597	...	...	74,281	...	...
Total N. Am.	...	*92,993*	*102,224*	...	...	...	*859,829*	*1,310,566*	...	*1,535,410*	*2,340,296*	...	...
*China	...	11,506	11,185	...	...	...	135,146	138,958	...	241,333	248,140	...	...
Manchukuo	...	3,199	2,736	...	...	50,338	46,772	38,313	89,890	83,522	68,416	107 6	131 4
*Palestine	...	...	8) 12	...	...	...	..	8) 64	...	..	114	...	...
Syria & Leb.	...	37	59	...	...	...	402	585	...	719	1,045	...	...
Turkey	9) 988	1,041	987	95 0	100.2	13,075	15,120	10,673	23,349	27,000	19,059	86.5	122 5
Total Asia	...	*4,277*	*3,782*	...	...	...	*62,294*	*49,571*	...	*111,241*	*88,520*	...	...
Algeria	...	16	21	...	...	...	77	126	...	137	225	...	...
Egypt 10)	1,597	1,570	1,819	101.8	87 8	...	34,990	37,981	...	62,483	67,823	...	...
Egypt 11)	...	9	10	...	...	...	181	181	...	323	324	...	...
Eritrea	...	20	26	...	...	...	90	214	...	161	382	...	...
*Kenya 12)	...	...	136	...	...	...	...	1,852	...	...	3,307	...	...
French Morocco	1,087	1,124	911	96 7	119.4	2,932	6,644	3,443	5,236	11,865	6,148	44.1	85.2
*Italian Somalia	...	...	30	...	...	...	220	322	...	394	574	...	...
Tunisia 13)	...	20	48	...	...	...	55	130	...	98	232	...	...
Total N. Afr.	...	*2,759*	*2,835*	.	...	...	*42,037*	*42,075*	...	*75,067*	*75,134*	...	...
Argentina 1)	...	(15,973)	(16,266)	...	...	—	—	—	—	—	—	—	—
Argentina 14)	...	11,930	11 152	...	...	...	201,387	187,441	...	359,621	334,718	...	...
*Chile	...	121	121	...	...	...	1,586	1,521	...	2,832	2,717	...	...
Un. of S. Afr.	...	12)5,808	12)5,839	...	...	...	49,626	33,975	...	88,618	60,669	...	...
TOTALS	...	149,392	156,169	...	...	...	1,639,406	1,985,765	...	2,927,516	3,546,017	...	...

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* Not included in the total. — 1) Area sown. — 2) Maize sown in spring. — 3) Maize sown in summer. — 4) Crop grown alone. — 5) Mixed crop. — 6) Average 1934 and 1935 — 7) Area fixed by the plan — 8) Average 1931 to 1933 and 1935. — 9) Unofficial figure — 10) *Nili* maize. — 11) *Sefi* maize — 12) Cultivation by Europeans. — 13) Maize and sorghum. — 14) Area harvested.

ripening of the later sown crops. The open, warm and dry weather of the last decade of the month brought about an improvement. Production is large as a result of the high yields which surpass the records of 1934 and 1936. Very high unit yields have been secured in the Danube, Morava and Sava banovines and in the Belgrade district.

Argentina (Telegram of 17 November): The growth of maize is late, as there have been complaints of very low temperatures in the producing areas. Crop condition, however, is still good.

Indo-China: In Cambodia, the very wet or cloudy weather of September did not enable maize to dry quickly, and the last crops harvested or those soaked in transit have only been imperfectly conditioned.

In Tonkin, the September floods delayed in some districts (La phu) the preparation of the land for the autumn season in the river basins; elsewhere preparations were making good progress (Thuyen quang). In the latter province, the rather unimportant summer and 3rd month crops gave poor results.

In Annam, crop yields were from 6 to 7 centals (11 to 13 bushels) per acre in the centre (Quang-nam); in south Annam the harvest was bad on high land but quite good in river basins; in the far south, production was on the whole satisfactory. August and September sowings on high land in south Annam had grown satisfactorily.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area:

	1937 acres	1936 acres
Area harvested in September	277,000	346,400
Area harvested from 1 January to 30 September	4 091.600	4.415.600
Area of standing crops at the end of September	1.084.300	1.221.700

Egypt: Harvesting of autumn maize is being carried out in the early and general cultivations in the south of the Delta and maturation is progressing in the early cultivations of the remaining districts where harvesting was begun in a few areas. Crop condition is normal.

Kenya: In September the weather was generally dry throughout the highlands, but the lower altitudes at the coast and Lake Victoria experienced satisfactory rains Maize in growth was well reported upon and a good crop was expected.

Current information on rice.

Greece: Propaganda for an expansion in the rice crop was increased this year. The area and production this year are not yet known but, according to recent information, the conditions in September and October were favourable to rice and the outturn is expected to exceed last year's.

Italy: The rice harvest was carried out in the first half of October. Results are confirmed as good in spite of the crop having suffered in September from diseases and damage done by bad weather.

Portugal: At the end of September the rice harvest was already well advanced; yields were regarded as satisfactory and it is forecast that production will be at least sufficient for consumption.

U. S. S. R.: According to reports from the main rice growing areas, the average unit yield was very high this year, being estimated at no less than 21.4 centals (47.6 bushels) per acre. The acreage under rice was forecast by the plan at 374,000 acres.

The fiveyear average from 1931 to 1935 was 318,000 acres, the average production was 5,020,000 centals (11,156,000 bushels) and the average yield per acre 15.8 centals (35.1 bushels)

British Guiana: It was expected in September that the rice harvest would start in the next few weeks and an average crop was forecasted

Taiwan: The growth of second crop rice was progressing under normal conditions.

India According to a cable of 23 November, the second estimate of the area sown in Burma this year is 12,686,900 acres The area destroyed is put at 224,900 acres, leaving 12,462,000 acres likely to mature There is thus a net increase of 18,200 acres over the first estimate of the area likely to mature

In both Lower and Upper Burma crop condition is reported to be favourable and a good outturn is expected

Indo-China The condition of standing rice at the end of September was generally satisfactory everywhere The only serious damage was caused by flooding, in particular in the low fields of Tonkin, the far north of Annam, south Annam, and in some provinces of Cochin-China

In more detail, the situation was as follows in the various parts of Indo-China, with the exception of Laos

In Tonkin, second or 10th. month crop· — Mountain and dry rice suffered much from flooding and excessive rain in some parts (Phu tho and Than thuy), elsewhere, vegetation was fairly good or good in the north where there was still standing rice; yields were good in central and southern provinces (13 to 17 4 centals or 30 to 38 7 bushels per acre) Early rice was ripening in good condition and some of the harvested crops gave satisfactory yields (8 to 16 centals or 18 to 36 bushels), fairly considerable damage was reported to have been caused by lodging or shedding as

Area and production of rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38		1937/38	1936/37	Average 1931/32 to 1935/36	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38	
				1936/1937 = 100	Average = 100							1936/1937 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 45 lb				
Bulgaria	14	22	18	64 4	77 0	272	457	345	605	1 015	767	59 5	78 8
Italy	352	358	340	98 3	103 6	15,152	15,253	15,074	33 670	33,894	33,496	99 3	100 5
United States	1,003	935	857	107 3	117 0	23,490	21,075	18,154	52,200	46 833	40 343	111 5	129 4
Burma	12 462	12 108	12,666	102 9	98 4		158,381	160,224		351 951	356,047		
India 1)	64,846	65,125	63,372	99 6	102 3		950 253	870 058		2 111 632	1,933,424		.
Indo-China													
Annam (1st semester)	2) 799	1,006	943	79 4	84 8	2) 6,621	9,293	7,684	2) 14 712	20 650	17,075	71 2	86 2
Tonkin (5th month)	2) 1,049	1 256	1,198	83 6	87 6	2) 11,875	13,390	13,407	2) 26,388	29 756	29,792	88 7	88 6
Japan	7,874	7 859	7,870	100 2	100 1	274 114	275 547	242,010	609 129	612,313	537,789	99 5	113 3
Egypt	269	489	378	55 1	71.2	.	15,275	10.475		33 943	23,277		...

1) First report — 2) Preliminary data. — 3) Final estimate

the result of a typhoon in the Nam dinh area. As regards season rice, the losses caused in low lying fields in some areas were only partly made up; elsewhere and fairly generally in the higher districts, condition was fairly good, average or good; flowering occurred in most places and ripening also in a few areas.

In Annam, the 8th. month rice was rather seriously damaged in the extreme north (Tanh-Hoa); it was good in other provinces in the north and centre (22 to 27 centals or 50 to 59 bushels per acre in some areas, Quang-Binh and Quang-Nam); it was good or very good in south Annam in low fields but only normal or below average in the higher fields which suffered from a shortage of water in July and August. 10th month rice was growing normally as a result of rain and, if floods did not occur, a good harvest was expected in central Annam. The situation of 12th. month rice was good in south Annam, including the extreme south.

In Cochin-China, sowing and replanting were carried out in good condition. The floating rice sown at the beginning of the rains showed very satisfactory growth but later sowings were less vigorous. Replanted rice was good and flowering of early crops was normal in some provinces (Giadinh, Cholon, Tanan). Continual showers in September, however, submerged low fields and in the northwest (Chandoe, Longxuyên, Sadec) floods caused serious damage which had not been estimated.

In Cambodia, work continued in September and replanting was finished almost everywhere at the end of the month.

Java and Madura· The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area:

	1937 acres	1936 acres
Area harvested in September:—		
Wet padi	352,100	376 100
Dry padi	1,500	5,400
Area harvested from 1 January to 30 September.—		
Wet padi	7,859,500	7,925,800
Dry padi	957,800	970,900
Area of standing crops at the end of September:—		
Wet padi	930,900	898,000
Dry padi	43,200	36,800

Egypt· Harvesting of summer rice is in active progress, and 60 per cent. of the crop had been accounted for by the end of October. Harvesting, threshing and storage for the remaining portion of the crops are in full swing. The rains which fell at the end of the month had no serious effect except in slightly retarding harvesting and spoiling some of the grains on the thrashing floors. The yield per acre is on the whole slightly above the average.

Harvesting of autumn rice is being carried out in the early cultivations and the yield per acre is expected to be slightly above the average.

World production of potatoes.

Since the publication of the October Crop Report the production of Czechoslovakia has been communicated to the Institute. The figure, though not quite up to the semi-official estimate mentioned last month, represents a

Area and production of potatoes.

COUNTRIES	AREA					PRODUCTION								
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100							1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 60 lb.				
*Albania	...	1)	1	...	...	...	22	22	...	36	37	...	...
Germany s)	320	332	548	96.4	58.4	37,846	35,928	56,813	63,075	59,878	94,686	105 3	66 6
Germany t)	6,816	6,569	6,495	103.8	105 0	1,120,410	985,336	925,352	1,867,313	1,642,194	1,542,222	113 7	121 1
Austria	538	519	496	103.7	108.3	61,441	52,220	56,790	102,399	87,032	94,648	117.7	108.2
*Belgium	392	396	413	99.2	95.1	..	71,109	79,253	..	118,512	132,086	...	...
Bulgaria	43	39	35	109.5	123.7	2,968	2,398	1,844	4,946	3,996	3,074	123.8	160.9
*Denmark	200	187	179	106.9	111.7	...	28,407	26,885	...	47,343	44,808	...	...
*Spain	. .	...	1,087	...	. .	...	...	109,215	...	...	182,022	...	...
Estonia	187	183	172	102 0	108 4	20,198	22,721	19,274	33,663	37,868	32,122	88.9	104.8
Finland	230	215	197	107.0	116.7	29,498	29,158	24,919	49,162	48,596	41,531	101,1	118.4
*France	2) 3,460	3,513	3.487	—	—	...	336,227	346,473	...	560,367	577,444	...	...
*Greece	58	48	42	119 4	137 7	s) 1,420	2,844	2,085	s) 2,367	4,740	3,475	—	—
Hungary	731	733	715	99 7	102.2	57,299	54,042	36,914	95,497	90,068	61,522	106 0	155.2
*Irish Free State	.	334	343	...	...	. .	54,232	56,298	...	90,387	93,829	...	...
Italy	1,040	1.037	1.004	100.3	103.7	66,139	58,001	53,116	110,229	96,667	88,524	114 0	124.5
Latvia	314	296	266	106.1	118.2	37,873	35,527	29,461	63,120	59,210	49,101	106.6	128.6
Lithuania	456	442	435	103 2	104 9	55,319	45,751	44,120	92,196	76,250	73,532	120 9	125 4
Luxemburg	41	41	41	100.0	100.9	4,904	4,411	4,170	8,173	7,352	6,950	111.2	117.6
*Malta	...	10	7	...	..	. .	570	541	...	951	902	...	...
Norway	128	127	120	100 6	106 5	20,109	20,852	19,855	33,514	34,753	33,092	96.4	101.3
Netherlands	336	322	384	104.3	87 5	55,116	55,260	66,669	91,858	92,099	111,113	99.7	82.7
Poland	7,360	7,150	6,821	102.9	107.9	833,350	755,776	684,604	1,388,889	1,259.601	1,140,984	110 3	121.7
*Portugal	...	78	79	...	. .	...	11,391	13,075	..	18,985	21,791	...	...
*Romania	...	535	490	...	.	...	42,823	38,101	...	71,370	62,500	...	...
United Kingdom													
England & Wales	455	457	484	99 7	94.0	66,595	63,034	69,700	110,992	105,056	116,166	105 7	95.5
Scotland	135	133	140	101.5	96.3	20,048	22,176	21,634	33,413	36,960	36,057	90 4	92.7
*Northern Ireland	125	132	136	95 2	92 0	...	17,576	20,527	. .	29,293	34,212	..	...
Sweden	329	330	328	99.7	100.3	38,956	40,260	41,253	64,925	67 098	68,753	96 8	94 4
Switzerland	121	117	114	103 4	105.7	17,970	12,521	16,580	29,949	20,868	27,633	143 5	108.4
Czechosl s)	103	104	96	99.3	108.0	7,394	8,995	6,883	12,323	14,991	11,472	82.2	107 4
Czechosl t)	1,803	1,772	1,728	101 8	104.3	231,068	226,939	189,133	385,105	378,224	315,215	101 8	122.2
*Yugoslavia	.	648	612	...	...	..	35,587	31,593	...	59,310	52,654	..	...
Total Europe	*21,486*	*20,918*	*20,619*	*102 7*	*104 2*	*2,784,501*	*2,531,306*	*2,369,084*	*4,640,741*	*4,128,761*	*3,948,397*	*110 0*	*117 5*
*U. S. S. R.	...	18,723	15,539	...	...	...	...	1,137,469	.	...	1,895,743	...	...
Canada	531	496	543	107.0	97 7	42,633	39.034	44,246	71,055	65.057	73,744	109 2	96.4
United States	3,224	3,058	3,513	105.4	91 8	235,200	197,998	227,441	392,000	329,997	379,068	118.8	103.4
*Palestine	...	4	1	...	..	...	198	55	...	331	91	...	...
*Syria and Lebanon	...	17	18	...	..	...	880	887	...	1,467	1,478	...	...
*Turkey	...	130	108	...	..	...	3,956	2,676	...	6,593	4,460	...	..
*Algeria s)	18	17	20	105.3	89 7	...	1,005	896	...	1,675	1,493	...	...
*Algeria t)	...	24	23	...	...	...	1,549	1,127	...	2,582	1,878	. .	...
*Tunis	...	...	5	...	...	...	...	130	...	...	217	..	...
*Eritrea	...	1)	1)	...	...	...	4	6	...	7	9	. .	...
*Chile	...	126	128	...	..	...	10,222	10,313	..	17,036	17,188	..	. .
TOTALS	**25,241**	**24,472**	**24,675**	**103 2**	**102 3**	**3,062,334**	**2,768,338**	**2,640,771**	**5,103,796**	**4,613,815**	**4,401,209**	**110 6**	**116 0**

s) Early crop. — t) Late crop. — *) Countries not included in the totals. — 1) Less than 1,000 acres — 2) Preliminary figure of 1 June very large crop, slightly exceeding last year's good production and almost 22 per cent. above the previous five-year average. It constitutes a record for the last 15 years.

Poland, the second largest producing country (excluding the U. S. S. R.), has raised her production figure by 131,000,000 centals (220,000,000 bushels), and the 1937 crop at present represents, as in the case of Czechoslovakia, a record for the last 15 years, being about 10 per cent. above the large crop of 1936 and nearly 22 per cent. above the average.

The United States have reduced their previous estimate by about 4,400,000 centals (7,300,000 bushels), but production can still be considered large.

Other revisions among lesser producing countries have not greatly affected world production. Even though the French crop was not satisfactory, the estimate made in October of the good results of the 1937 season can be upheld or even enlarged, as a result of the large outturns of Germany, Poland and Czechoslovakia.

The total production of the countries for which figures are at present available is 3,062 million centals (5,104 million bushels) against 2,768 million (4,614 million) last year and a five-year average of 2,641 million (4,401 million), an increase respectively of 10.6 per cent. and 16 0 per cent.

Current information on potatoes.

France The harvest, which was completed in October, seems to have given much the same yield as last year In some cases, quality is unsatisfactory as a result of sprouting of tubers just before lifting, and also of attacks of mildew

Greece The rains of September nd October were favourable for potatoes which were being lifted at the beginning of October Some disease damage occurred in Eubea and Crete Notwithstanding an appreciable increase in area, production this year is expected to be slightly smaller than last year owing to the decrease in yields

Hungary On 26 October, lifting of the main potatoe crop was still going on in some areas The tubers are generally good in appearance, large and healthy

Irish Free State The yield of potatoes this year is estimated as about average

Italy· The results of the last potato lifting, taken in the first fortnight of October, confirm the forecasts of a good producion

United Kingdom The weather during October was mainly fine and dry, but rain fell in the last week Conditions were excellent for the lifting of potatoes, which was practically completed by the end of the month Most varieties were of good quality and fair size, but some were small Disease was rather less prevalent than usual, except in parts of Scotland The forecast yield per acre in England and Wales is 145.6 centals (7 3 short tons), or 5 6 (0 3) more than the ten-year average of the forecasts made on 1 November.

Czechoslovakia: The potato crop is exceptionally plentiful but it is partly affected by rot, particularly the yellow edible varieties.

Argentina· In October the planting of potatoes was in full swing in the south east of the province of Buenos Aires and in Mendoza. Hail did very serious damage in the provinces of La Rioja, Catamarca, Salta and Jujuy and in the unirrigated areas of Tucuman. Crop condition was excellent however in the province of Buenos Aires and the south of Sante Fé.

Algeria: Weather conditions favoured the growth and maturation of potatoes.

Production of beet-sugar and world sugar stocks.

In central and northern Europe weather conditions in the second fortnight of October and the first decade of November were autumnal with heavy rain and variable but generally rather warm days that favoured the last stages of

Production of beet-sugar (raw).

COUNTRIES	PRODUCTION (1 Sept.-31 October)		TOTAL PRODUCTION DURING THE SEASON			% 1937-38	
	1937 38	1936-37	1937-38 1)	1936-37	Average 1931-32 to 1935-36	1936-37 = 100	Average = 100
	Thousand centals						
Germany	13,158	12,063	46,609	39,689	32,914	117	142
Austria	882	890	3,351	3,230	4,087	104	82
Belgium	1,639	1 695	5,313	5,367	5,308	99	100
Bulgaria	279	135	573	241	505	238	114
Denmark	.	..	5,181	4,987	3,841	104	135
Spain	..	.	4 519	4,982	6 006	91	75
Finland	72	89	220	242	165	91	134
France	569	523	20,095	19,191	21,930	105	92
Hungary	2) 15	2) 30	2,647	3,170	2,649	84	100
Irish Free State	85	3	2,066	2,148	1,014	96	204
Italy	7,032	7,324	7 423	7,187	7,422	103	100
Latvia	389	326	1 058	936	798	113	133
Lithuania	485	271	650	596	313	109	208
Netherlands	1 990	2 109	4,681	5 175	5,002	90	94
Poland			12,125	10,108	9 452	120	128
Romania	459	453	1,918	1,737	2,243	110	85
United Kingdom	2 228	3 131	10,528	12,991	10,299	81	102
Sweden	6,768	6 596	6,945	6,596	5,512	105	126
Switzerland	.		265	198	177	133	150
Czechoslovakia	.		16 360	16,019	14,063	102	116
Yugoslavia	..	.	1,010	2,221	1,749	45	58
Total Europe a)	—	—	*153 537*	*147,011*	*135,449*	*104*	*113*
U S S. R	—	—	55,116	44,071	29,733	125	185
Total Europe b)	—	—	*208,653*	*191,082*	*165,182*	*109*	*126*
Canada	—	—	1,213	1,725	1,374	70	88
United States	—	—	29,366	27,911	27,893	105	105
Total North America	—	—	*30,579*	*29,636*	*29,267*	*103*	*104*
Japan	—	—	1,168	1,069	675	109	173
Turkey	—	—	1,323	1,453	1,066	91	124
Total Asia	—	—	*2,491*	*2,522*	*1,741*	*99*	*143*
GENERAL TOTALS a)	—	—	**186,607**	**179,169**	**166,457**	**104**	**112**
GENERAL TOTALS b)	—	—	**241,723**	**223,240**	**196,190**	**108**	**123**

a) Not including U. S. S. R. — b) Including U. S. S. R. — 1) Approximate data — 2) Production to the end of September growth of late beet crops and the work of lifting and despatch to the factories. On the whole the beet arrived at the factories in good condition, though in same cases it was very dirty, having been lifted in fields saturated with water.

As a result of this favourable weather and the good harvest conditions, some countries have made the first increases in their provisional estimates of the probable beet-sugar production and in all probability other countries will do the same when more accurate data are available of the quantity of beet delivered to the factories and their sugar-content.

With the aid of these first data, the forecast of total European beet-sugar production (excluding the U. S. S. R.) in the present season has been raised 1 per cent. over last month's estimate.

Reports from the U. S. S. R. confirm what was said at the beginning of the season, namely that the crop is very large and for this reason no revision has been made of the figure published in the October Crop Report, pending more accurate information.

In the table of beet-sugar production have been added the statistics of the quantity of sugar manufactured from the beginning of the season to the end of October; the quantity manufactured so far this year is at present a little less than last year, because the season began rather later this year in many European countries.

* * *

Now that statistics are available of the total stocks of cane- and beet-sugar at the beginning of the new 1937-38 season for a good number of European countries and also for Canada, Cuba, the United States, Puerto Rico, Java and the Philippine Islands, which are the largest extra-European producers or exporters, we have accordingly constructed the accompanying table comprising the period from 1 September 1931 to 1 September 1937. To these figures have been added also those of floating stocks, to obtain combined statistics, that do not represent total world stocks, but approach very closely to them.

Sugar stocks in Europe decreased gradually from 1 September 1931 to 1 September 1934; but after the increase at the end of the 1934-35 season, due to the large production of that season, European stocks again declined to reach this year on 1 September the lowest figure recorded in the period under consideration.

Almost all European countries contributed to this reduction during the 1936-37 season, with the exception of the United Kingdom where stocks on 1 September 1937 had risen 52 per cent since 1 September 1936, Hungary where stocks had risen 28 per cent , and Sweden which showed an increase of only 2 per cent. The largest reductions were in Germany 12 per cent., Austria 40 per cent., Belgium 17 per cent., France 41 per cent., Italy 23 per cent., the Netherlands 27 per cent., Poland 11 per cent., Romania 57 per cent. and Czechoslovakia 27 per cent. Sugar stocks in extra-European countries have also diminished every year since 1 September 1932, at a more rapid rate even than European stocks; but, while in Europe almost all countries

Visible stocks of sugar on 1 September 1).

COUNTRIES	1937	1936	1935	1934	1933	1932	1931
	(Thousand centals)						
Germany	7,081	8,029	8,188	5,657	7,597	16,453	16,378
Austria	1,228	2,033	1,422	196	315	154	672
Belgium	1,144	1,387	1,437	1,162	1,252	1,455	1,874
Bulgaria	37	386	522	1,019	697	655	783
France	4,178	7,117	8,647	4,491	5,304	4,833	6,784
Hungary	774	606	620	646	875	600	1,043
Italy	3,554	4,608	5,928	5,895	4,669	5,741	5,922
Netherlands	2,185	2,976	3,450	4,332	3,327	2,937	3,530
Poland	1,744	1,953	2,317	2,154	3,783	3,893	5,822
Romania	763	1,786	1,131	871	425	1,179	2,205
United Kingdom	5,714	3,754	4,852	5,944	6,989	4,663	4,828
Sweden	2,705	2,657	2,754	2,972	2,156	2,088	2,568
Czechoslovakia	1,565	2,145	2,183	1,997	2,989	4,676	6,905
Total Europe	*32,672*	*39,437*	*43 451*	*37,336*	*40,378*	*49,327*	*59,314*
Canada	2,273	2,165	2,176	2,141	2,127	2,103	1,847
Cuba	28,352	26,422	28,149	45,623	49,567	52,369	56,042
United States (ports)	3,574	8,986	14,493	17,271	9,513	11,804	12,088
Puerto Rico	5,979	4,827	4,378	7,300	1,975	3,814	3,836
Java	14,286	19,784	34,763	52,316	65,610	64,280	43,610
Philippines	2) 1,102	507	419	1,014	22	516	0
Afloat	10,494	5,732	8,422	5,291	5,534	7,165	5,776
TOTAL	**98,732**	**108,860**	**136,251**	**168,292**	**174,726**	**191,378**	**182,513**
	(Thousand short tons)						
Germany	354	401	409	283	380	823	819
Austria	61	102	71	10	16	8	34
Belgium	57	69	72	58	63	73	94
Bulgaria	2	19	26	51	35	33	39
France	209	356	432	225	265	242	339
Hungary	39	30	31	32	44	30	52
Italy	178	230	296	295	233	287	296
Netherlands	109	149	173	217	166	147	176
Poland	87	98	116	108	189	195	291
Romania	38	89	57	44	21	59	110
United Kingdom	286	188	243	297	349	233	241
Sweden	135	133	138	149	108	104	128
Czechoslovakia	78	107	109	100	149	234	345
Total Europe	*1,633*	*1,971*	*2,173*	*1.869*	*2,018*	*2,468*	*2,964*
Canada	114	108	109	107	106	105	92
Cuba	1,418	1,321	1,407	2,281	2,478	2,618	2,802
United States (ports)	179	449	725	864	476	590	604
Puerto Rico	299	291	219	365	99	191	192
Java	714	989	1,738	2,616	3,280	3,214	2,180
Philippines	2) 55	25	21	51	1	26	0
Afloat	525	287	421	265	277	358	289
TOTAL	**4,937**	**5,441**	**6,813**	**8,418**	**8,735**	**9,570**	**9,123**

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1) Many of these figures are taken from Licht's *Monthly Report on Sugar* and *Weltzuckerstatistik* — 2) Estimated

Sugar production.

(U. S. S. R. not included).

	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31
	(Thousand centals)						
Europe	147,049	136,806	151,877	132,322	121,607	130,183	188,231
Total	634,713	579,818	549,835	543,882	523,445	556,427	601.247
	(Thousand short tons)						
Europe	7,352	6,840	7,594	6,616	6,080	6,509	9,411
Total	31,735	28,990	27,491	27,194	26,172	27,821	30,062

contributed to the decline, in the rest of the world the reduction was due almost solely to the island of Java, which alone for a long series of years has undergone the sacrifice of a severe restriction of cultivation. Last season, in addition to the reduction in Java, there was a drop in the United States' stocks, so that on 1 September 1937 extra-European stocks had been reduced since 1 September 1936 by 28 per cent. in Java and 60 per cent. in the United States and these reductions more than counteracted increases in other countries. By adding together European, extra-European, and floating stocks we obtain a total of world stocks, that on 1 September 1937 was 10,100,000 centals (500,000 short tons) lower than a year before.

By comparing the statistics of stocks, production, imports and exports an estimate may be made of the probable sugar consumption. Calculated on this basis, the world consumption of sugar in the 1936-37 season should prove considerably larger than that of the 1935-36 season.

World sugar consumption up to the 1930-31 season inclusive remained about stationary for some years; but from 1931-32, consumption increased continuously right up to the 1936-37 season just ended, when probable world consumption exceeded that of the previous season by about 17,600,000 centals (880,000 short tons). This further confirms the rather improved situation of the sugar industry after so many years of crisis caused by overproduction

E R.

Current information on sugar.

Austria: By the beginning of November 85 per cent of the sugar-beet was harvested and 75 per cent. despatched to the factories, where 2/3 were converted into sugar. The quality of the beet was rather poorer than last year

Belgium Sugar-beet yields were variable and generally below average but showed a high sugar content

Bulgaria. As a result of the agreement made between the sugar-beet producers and the sugar manufacturers, the acreage under beet this year has been greatly increased, it is, in fact, almost double that of last year The unit yield is reported as slightly above average and a large production is forecast Lifting was delayed by rain in the first half of October but was resumed in the second fortnight in fine, dry weather. Saving was finished at the beginning of November and the despatch of beet to the factories continued normally and in quantities almost double those of last year

France. The growth of sugar-beet was rather retarded and they were still small after the September rains. Under the influence of the fine weather of October, lifting progressed well and was early. Yields per acre are on the whole rather higher than last year but, as the acreage was somewhat smaller, total production will be hardly up to that of 1936, but sugar-content is a little higher. Briefly then, the production of beet-sugar should be slightly larger than last year.

Hungary: On 26 October, lifting and bringing in of beet were in progress The roots are healthy and generally well developed.

Irish Free State: The sugar-beet crop this year is variable, and is not expected to yield quite as well as average

Area and production of sugar-beet.

Countries	Area					Production							
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100							1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 short tons				
Germany 1)	958	961	833	99.7	115.0	308,945	266,668	213,654	15,447	13,333	10,683	115.9	144.6
Austria	100	93	111	106.8	89.5	21,524	20,117	24,802	1,076	1,006	1,240	107.0	86.8
Belgium	118	117	131	100.5	90.4	...	32,880	35,019	...	1,644	1,751	...	...
Bulgaria	25	13	23	184.1	109.9	3,979	1,765	3,779	199	88	189	225.4	105.3
Denmark 2)	102	94	105	107.7	96.8	...	40,052	30,312	...	2,003	1,516	..	...
Finland	8	8	6	106.0	129.0	1,874	1,830	1,381	94	91	69	102.4	135.7
France 3)	4) 702	710	770	—	—	...	177,604	187,168	...	8,880	9,358	...	...
Hungary	117	122	114	96.1	102.1	24,313	24,790	19,624	1,216	1,239	981	98.1	123.9
Italy	317	299	230	105.8	137.7	73,069	58,021	53,300	3,653	2,901	2,665	125.9	137.1
Latvia	...	29	28	...	...	...	2) 5,177	4,683	...	2) 259	234	...	...
Lithuania	20	17	11	114.3	173.5	...	3,758	1,976	...	188	99	...	...
Netherlands	103	106	103	97.8	100.3	31,218	36,117	34,492	1,561	1,806	1,725	86.4	90.5
Poland	365	300	294	121.6	124 2	...	56,938	53,172	...	2,817	2,659	...	...
Unit King:													
Engl and W	307	349	323	87.9	94.9	...	75,869	65,145	...	3,793	3,257	...	...
Scotland	7	7	4	106.3	196.6	...	1,525	732	...	76	37	...	...
Sweden	126	127	113	99.3	111.9	40 367	39,675	35,261	2,018	1,984	1,763	101 7	114.5
Switzerland	..	4	4	...	...	...	1,433	1,249	...	72	62	...	...
Czechoslov	448	381	392	117.5	114.3	106.272	104,928	88,225	5 314	5,246	4,411	101 3	120.5
Yugoslavia	...	75	85	...	...	...	13,617	12,852	...	681	643	...	...
U. S. S. R.	5) 2,943	3,104	3,238	94 8	90.9	465,177	371,039	243,261	23,259	18,552	12,163	125 4	191 2
Canada	47	56	49	83.8	95.0	8,380	11,900	9,262	419	595	463	70 4	90.5
U. S. A.	778	776	799	100.3	97.4	184,000	180,560	173,720	9,200	9,028	8,686	101.9	105.9

1) Not including crops for seed — 2) Sugar-beet for factories — 3) Including beets for distilling (averaging 108,000 acres and 28,504,000 centals or 1,425,000 sh. tons from 1930 to 1934) — 4) Area sown on 1 June — 5) Area estimated by the Plan.

Italy: The sugar-beet crop is confirmed as being on the whole good, but the sugar content is rather low.

United Kingdom: Sugar-beet in the generally dry weather of October maintained the improvement of the previous month. Though roots are small, they are of fair quality, and the sugar content is high. The yield per acre was estimated on 1 November to average 168.0 centals (8.4 short tons), which is about 45 centals (2.2 short tons) less than last year and 22.4 (1.1) less than the ten-year average.

The sugar-content was about 18 per cent. as against 17.4 per cent in October last year.

Czechoslovakia: The yield of sugar-beet is larger than that indicated by the last reports though the latter were good. Much of the crop must therefore be utilized for stock. The sugar content is below that of normal years.

Yugoslavia: The restrictions imposed by the sugar factories on beet supplies resulted in a substantial decline in the cultivated acreage. The frequent rains and cloudy weather of the last two months reduced the sugar-content of the roots but increased the weight of foliage and roots. The production of beet and, consequently, of sugar are expected to be much smaller than last year, a result which may enable the large stocks to be reduced, make it possible to remove the restrictions and induce growers to increase the crop area next year.

U S S R.. On 25 October the collective farms (according to the plan, the acreage under sugar-beet for sugar in the whole country was 2,943,000 acres of which 148,000 were in State farms and the remainder, 2,795,000 were in collective farms) had completed the beet harvest over an area representing 93 per cent of the plan, giving a yield of 384,708,000 centals (19,235,000 short tons) of sugar-beet By 10 November the production of sugar-beet had reached 430,000,000 centals (21,450,000 short tons) and the harvest was nearly completed At the same date, the quantity of beet despatched to the sugar factories amounted to 86 per cent. of the harvest The total production of sugar-beet this year is thus considerably larger than last year (371,000,000 centals or 18,550,000 short tons) and will exceed 440,000,000 (22,000,000)

When the Crop Report was in the press, it was reported that production of beet was estimated at 465,000,000 centals (23,260,000 sh tons).

Argentina Weather conditions in October were favourable for the planting of sugar-beet

Barbados· Heavy rains in certain parts of the island were reported in September, but general rains were wanted In some districts the drought had affected the sugar canes

British Guiana In September grinding of the new sugar crop had begun on most of the estates.

Jamaica It was reported in September that the growing sugar cane had suffered from the lack of rain and that if the dry weather continued it might have an adverse effect on the coming crop

St Kitts-Nevis In September the sugar crop showed an improvement, but it was reported that more rain was needed

Taiwan Canes of the old plantations were growing under quite satisfactory conditions and those of new plantations under normal conditions

Netherlands Indies Weather was wet in Pasoervean during the second half of October but elsewhere the canes were suffering from drought though condition was still satisfactory and, in some places, even very good White grub was reported to be widespread but was itself attacked by *Encarsia*.

In the first half of November, there was little rain The young cane plantations suffered somewhat from drought and canes began to lose colour Work is a little behindhand (Aneta)

Indo-China In Tonkin, the crop varied from one province to another but was rather good at the end of September In Annam, the crop was good on the whole, but the typhoon of the end of September did some damage in the far north (Tanh-Hoa)

Japan According to the most recent estimate, the production of cane sugar this year will be about 2,928,000 centals (146,000 short tons) against 2,648,000 (132,000) in 1936-37 and 2,018,000 (100,900) on the average of the five years ending 1935-36, percentages, 110 6 and 145 1.

Egypt The sugar cane crop grows satisfactorily and the early cultivations were approaching maturation, the rest of the cultivations are progressing. The operations in progress are watering and cutting of the crops destined for local consumption Crop condition is normal

Mauritius: Weather conditions in September were satisfactory for harvesting. The sugar crop was estimated at 7,055,000 centals (353,000 short tons) as compared with 6,621,000 (331,000) in 1936-37 and 4,992,000 (250,000) on the average of the preceding five seasons Percentages: 106 5 and 141 3

Union of South Africa: Sugar-cane crop condition averaged 9 per cent. below normal in September. The weather was very dry throughout the sugar-belt, the highest rainfall measured being 1.61 inches in Zululand.

Current information on vines.

France: Yields are very variable but on the whole do not appear likely to be much higher than last year. Alcohol content is high, quality is generally good, in spite of the high temperatures during fermentation, that had caused fears for the good preservation of the wine.

Greece: Gathering of grapes was finished everywhere by the middle of October except in the higher districts. Notwithstanding the unfavourable weather conditions of September and October and the spread of mildew a much larger production of must is expected than was obtained last year, when production was poor, but the yield will not reach the level of previous years. Gathering of table grapes, which are also expected to yield a plentiful crop, was still going on in the first half of October.

According to the most recent estimate, the total area cultivated to vines (for must) this year is about 390,600 acres against 375,700 in 1936 and 350,200 on the average of the five years ending 1935; percentages, 103.9 and 111.5. The corresponding production is estimated at about 70,718,500 Imperial gallons (84,926,600 American gallons) against 42,213,200 (50,694,200) and 79,854,100 (95,897,600), percentages, 167,5 and 88.6.

Area cultivated to vines for table grapes this year is about 50,200 acres against 51,300 in 1936 and 42,400 on the average of the five years ending 1935, percentages, 98.0 and 118.4. The corresponding production is estimated at about 1,507,000 centals against 995,000 and 1,573,000 percentages, 151.5 and 95.9.

Hungary At the end of October, the vintage was finished almost everywhere. Production is generally below average. The quality of grapes is very variable

Italy: Heavy rain in the first fortnight of October affected adversely the vintage the quality of the grapes is not good and the sugar and alcohol contents are low. A poor production is confirmed.

According to an official report, wine production in Italy this year is about the same as last year (740 million Imperial gallons or 889 million American gallons) compared with the 1931-35 average of 846 million Imperial gallons (1,016 million American gallons), a decrease of 12.5 per cent.

Portugal: Rain in the second half of September favoured vines. Ripening was normal. Wine production is forecast as larger than last year.

Romania: By 20 October the vintage was nearly finished. Production will be below average as a result of the rain that fell just before the vintage. Quality also will be worse than last year.

Czechoslovakia: Vines were affected by wet weather during the ripening period and grapes began to rot. The quantity eliminated was larger than usual. The crop was smaller but the quality of the wine is generally good.

Yugoslavia: During the first half of October the gathering of grapes was finished in the banovine of Primorze where production is reported to be light and below the outturn of a year ago. Quality, however, is good.

In the principal areas of production, that is, in the banovines of the Danube, the Sava and the Morava, serious damage was caused by the September hailstorms. The excessively wet weather of the last two months resulted in mildew attacks in the same areas.

Production this year is not on the whole equal to last year's either in quantity or in quality

Argentina: Hail at the beginning of October rather seriously damaged vines in several parts of Mendoza, Salta and Jujuy In La Rioja and Catamarca the condition of vines was average

Algeria Rain rather affected the last mountain vintages A very large increase in *fumagine* in the vineyards is reported Crop condition was average.

Current information on olives.

France The ripening of olives was very early and the picking of early crops had begun in certain central départements (Var) Yields varied, production generally is poor, owing to the ravages of *dacus* and other influences reported earlier

Greece The rains of September and the first half of October stopped the shedding of olives caused in August by the prolonged summer drought and favoured growth In many areas, especially in Chios and Mytilene where preventive measures were inadequate, damage has been caused by *dacus* ranging from 10 to 30 per cent Despite these unfavourable conditions, prospects of a plentiful crop are confirmed by recent information from the main areas of production where a decrease in olive oil prices is reported To check the fall, the Government, in addition to the import duty, has imposed a special tax on native or imported oilseeds intended for the manufacture of oil.

Italy The crop condition of olives in the first fortnight of October was quite good, but considerable shedding was reported as a result of insect attacks. Crop forecasts varied from good to mediocre. In some districts of Liguria yields were low.

According to an official communication, the production of olive oil in Italy is estimated this year at 5 1 million centals (67 million American gallons) against 3.5 million (45 million) in 1936-37 and an average of 4 5 million (60 million) in the five years 1931-32 to 1935-36 Percentages, 148 5 and 113 0.

Portugal: Rain in the second fortnight of September favoured olive-trees. Oil production will be larger than last year and the year 1935-36.

Argentina: Drought and winds in October seriously damaged olive-trees in the provinces of La Rioja and Catamarca

Algeria Rain assisted the growth of olives particularly in Oranie. Some attacks of *dacus* are reported in the Miliara district. Crop condition is good.

Area and production of flax.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 pounds				
	Fibre.												
Germany 1)	141	109	23	129.1	604.1	785	657	2) 163	78,543	65,679	2) 16,346	119.6	480.5
Austria	7	6	5	123.0	135.6	18	16	14	1,797	1,564	1,432	114.9	125.5
*Belgium	70	72	33	96.9	211.3	...	480	230	...	48,029	22,977	...	...
Bulgaria	11	7	2	155.6	429.3	14	3	4	1,408	315	445	447.4	316.3
Estonia	77	70	50	110.1	155.8	249	192	143	24,860	19,211	14,313	129.4	173.7
*Irish Free State	...	5	2	...	...	...	21	8	...	2,121	831	...	...
*Finland 3)	9	11	11	87.4	87.0	...	..	36	...	..	3,571	...	...
*France	..	97	45	.	..	...	563	253	...	56,317	25,278	...	...
Hungary	10	9	4) 7	112.5	136.2	38	39	4) 24	3,808	3,868	4) 2,395	98.4	159.0
Italy	15	15	9	102.1	166.3	66	71	44	6,579	7,094	4,361	92.7	150.8
Latvia	171	166	113	103.0	150.8	566	409	334	56,571	40,874	33,431	138.4	169.2
Lithuania 3)	218	208	145	105.0	150.7	679	635	472	67,865	63,482	47,233	106.9	143.7
Netherlands	43	33	14	130.6	298.4	302	271	105	30,192	27,137	10,473	111.3	288.3
*Poland	360	330	257	109.1	139.9	..	821	693	...	82,109	69,297	...	...
*Romania	.	71	62		.	..	261	159	..	26,090	15,930	...	...
Un Kingd * North Ir	19	25	13	75.2	143.0	..	113	68	...	11,274	6,839	...	...
Czechoslovakia	48	40	23	118.1	209.8	227	210	100	22,687	21,026	9,962	107.9	227.7
*Yugoslavia	.	34	29	.	.		264	225	.	26,352	22,481	..	.
Total Europe	*741*	*663*	*391*	*112.0*	*187.4*	*2,944*	*2,503*	*1,403*	*294,310*	*250,250*	*140,391*	*117.7*	*209.6*
*U. S. S. R. 5)	6) 4,709	5,310	5,689	88.7	82.8	..	11,685	11,832	.	1,168,454	1,183,168	..	...
Egypt	7	6	4	109.1	176.5	44	41	23	4,418	4,128	2,287	107.0	193.1
Totaux	**748**	**669**	**395**	**112.3**	**188.1**	**2,988**	**2,544**	**1,426**	**298,728**	**254,378**	**142,678**	**117.5**	**209.4**
	Linseed.								1,000 bushels of 56 pounds				
Germany	141	109	23	129.1	604.1	847	715	2) 192	1,512	1,276	2) 343	118.5	441.0
Austria	4	3	3	108.2	112.3	12	13	12	22	24	22	92.2	100.0
*Belgium	70	72	33	96.9	211.3		433	175	...	772	313	..	...
Bulgaria	11	7	2	155.6	429.3	37	38	10	67	68	19	97.6	359.4
Estonia	77	70	50	110.1	155.8	231	247	147	412	440	262	93.5	157.4
*France	.	97	45				.	188	..	...	335	..	...
Hungary	15	15	4) 27	103.4	55.5	95	95	4) 129	169	169	4) 230	100.0	73.3
Italy	19	16	12	121.1	159.6	112	84	63	200	150	113	133.8	177.5
Latvia	171	166	113	103.0	150.8	517	406	307	924	725	549	127.4	168.4
Lithuania 3)	218	208	145	105.0	150.7	847	809	555	1,512	1,444	991	104.7	152.7
*Netherlands	43	33	14	130.6	298.4	.	240	89	...	428	159	...	.
*Poland	360	330	257	109.1	139.9	.	1,579	1,157	.	2,820	2,066	..	.
*Romania	.	71	62				299	239	..	534	426	.	.
Czechoslovakia	48	40	23	118.1	209.8	187	161	78	335	288	139	116.4	241.5
*Yugoslavia	.	34	29				34	19	...	60	34		.
Total Europe	*704*	*634*	*398*	*111.0*	*175.8*	*2,885*	*2,568*	*1,493*	*5,153*	*4,584*	*2,668*	*112.5*	*193.2*
*U. S. S. R.	7) 5,855	7) 5,798	6,766	101.0	86.5			16,808	..	.	30,014		..
Canada	241	468	377	51.5	63.9	385	1,005	940	687	1,795	1,679	38.3	40.9
United States	1,081	1,180	1,770	91.6	61.1	4,275	3,308	5,639	7,634	5,908	10,070	129.2	75.8
India	3,594	3,457	3,230	104.0	111.3	9,363	8,691	8,893	16,720	15,520	15,880	107.7	105.3
Egypt	7	6	4	109.1	176.5	46	42	28	82	75	50	109.0	162.2
*Eritrea	...	11	4	..	..	...	46	21		82	37	.	
*Fr Morocco	...	43	49	.	.	146	212	223	260	378	399	68.7	65.1
*Argentina	8) 7,339	8) 7,438	8) 7,514	98.7	97.7	..	40,786	39,518	..	72,832	70,568	...	...
*Uruguay	..		469	350	..	...	...	2,745	1,749	...	4,901	3,124	..	...
Totaux	**5,627**	**5,745**	**5,779**	**97.9**	**97.3**	**16,954**	**15,614**	**16,993**	**30,276**	**27,882**	**30,347**	**108.6**	**99.8**

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†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) The corresponding figures in dry stalks (flax in raw « Rohstengel ») are as follows. 1937-392,700,000 lb ; 1936-328,400,000 lb, average 81,700,000 lb — 2) Average 1933 to 1935 — 3) Flax and hemp — 4) Average 1934 and 1935 — 5) "Dolgunetz" variety — 6) Area harvested on 25 August representing 93 % of the area fixed by the Plan (5,108,700 acres) — 7) Total area according to the plan — 8) Area sown

Current information on flax.

Greece: The recent attempts to introduce flax in Greece have met with success. The area this year is larger than last year at about 2,500 acres. Conditions in September and October were favourable for growth and a good outturn is expected.

Irish Free State: The flax crop yield is estimated as rather lower than last year.

Czechoslovakia: The flax crops in some areas were rather short but fibre quality was fairly satisfactory generally.

Argentina (Telegram of 17 November): The condition of flax varies from average to good.

Current information on cotton.

Bulgaria: The wet weather of the first half of October had an unfavourable effect on the cotton crops by delaying picking and the opening of bolls and damaging, though slightly, the bolls already opened. However, the rather dry and fine weather of the second half of the month appreciably improved the outlook and the crop was expected to be plentiful.

Greece· The condition of unirrigated cotton crops, which previously had been rather poor owing to the drought of the summer, improved appreciably with the

Area and production of cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38		1937/1938	1936/1937	Average 1931/32 to 1935/36	1937/1938	1936/1937	Average 1931/32 to 1935/36	% 1937/38	
				1936/1937	Average							1936/1937	Average
	1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb.			= 100	= 100
Bulgaria	113	78	44	145.2	254.6	197	140	74	41	29	16	140.3	264.4
Greece	181	154	74	117.5	245.4	364	279	146	76	58	31	130 6	249.4
U. S. S. R.	1) 5,163	5,024	5,068	—	—	1) 16,645	16,976	9,309	1) 3,482	3,551	1,947	—	—
United States 2)	33,736	30,028	31,697	112.3	106.4	87,202	59,267	60,629	18,243	12,399	12,684	147.1	143.8
Mexico	856	844	390	101.5	219.3	1,558	1,717	1,000	326	359	209	90.8	155.9
Montserrat 3)	5	5	3	109.9	170.6	5	5	6	1	1	1	109.4	84.4
St. Vincent 3)	5	5	2	85.0	259.0	...	3	2	...	1	*)	...	.
Burma	537	519	396	103.5	135.6	...	452	318	...	95	67	...	...
India 4) 5)	20,715	*20,481	19,724	101.1	105.0	—	—	—	—	—	—	—	—
Egypt	2,053	1,781	1,657	115.3	123.9	7) 11,035	9,021	7,127	7) 2,309	1,887	1,491	122.3	154.8
Nyasaland	—	—	44	—	—	40	48	35	8	10	7	82.5	115.3

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*) Less than 500

1) According to the Plan — 2) See: *Summary of Government Cotton Reports.* — 3) *Sea Island* cotton — 4) Not including Burma. — 5) Second report — 6) Revised estimate. — 7) First estimate.

assistance of the rains of September and October. The crops in irrigated regions were in better condition. Ripening was hastened by the warmer and drier weather of October. Owing to the higher yield per acre and the increase in sowings over last year, a very plentiful crop is expected this year.

Italy: On 15 October cotton production was reported to vary from one distrct to another. the Sicilian harvest was on the whole estimated as satisfactory.

Yugoslavia: Cotton growing was attempted for the first time in the Banat, giving very satisfactory and quite unexpected results

U. S. S. R.: According to the provisional estimates, cotton production this year is larger than last year On 10 November 79 per cent of the harvest plan had been completed.

Argentina The rain that fell in the second decade of October favoured the work of cotton planting in the Chaco, Corrientes, the north of Santa Fé and Entre Riós. In the latter province, however, the rainfall was, insufficient In Tucumán and Santiago del Estero and the north of Córdoba the preparation of the soil and sowing were hampered by drought

United States During the week ending 19 October, the cotton crop has been largely gathered in southern portions of the belt. In northern districts picking made mostly good advance in eastern sections, but slow in western owing to rain. There was more or less moisture damage to the staple of unpicked cotton in the western States.

During the following week, unseasonably cold weather prevailed throughout the cotton belt, with frost or freezing temperatures extending into central sections. Rainfall was heavy in the east, light to moderate in most east and central sections, but practically a rainless week was reported from the western half of the belt While further growth of cotton was stopped by low temperatures in most northern parts, there was no extensive frost damage

During the week ended 3 November the weather in the cotton belt was generally warm and dry except that there was considerable rain in the north-eastern districts. The picking of the remaining crop made almost an uninterrupted progress except locally, and the harvest was nearly completed in the western belt A considerable amount of cotton was still in the fields in the north-eastern districts of the cotton belt, but the harvesting was making rapid progress.

According to the Cotton Report based upon conditions as on 1 November, and issued on 8 November, a crop of 18,243,000 bales is forecast, this would be by far the largest crop on record for any year in the United States, and the same is true also for the indicated yield per acre of 258.8 pounds of lint (See *Summary of Government Cotton Reports*) Most of the unpicked cotton was open and subject to weather damage. Inclement weather would, therefore, materially interfere with picking and result in a considerable loss in the fields This report is an estimate of the amount of cotton that was expected to be ginned allowing for average loss in the fields The amount of cotton ginned from the 1937 crop prior to 1 November 1937 is also the largest on record for that date Moreover, in most States the average gross weight of the running bales is considerably above 511 pounds, which is the average of the last seven years.

During the week ended 10 November, the picking of the cotton crop in the northern portions of the belt made good advance.

Summary of Government cotton reports, by cotton season.

	Provisional estimates for dates indicated 1937/38	Final estimates		Percent. 1937/38	
		1936/37	Average 1931/32 to 1935/36	1936/37 = 100	Aver. = 100
Report referred to 1 July:					
Area in cultivation (acres)	34,192,000	30,960,000	34,382,000	110.4	99.4
Report referred to 1 August.					
Area left for harvest (acres)	1) 33,429,000	2) 30,028,000	2) 31,697,000	111.3	105.5
Crop condition (per cent. of normal)	81	72	3) 69	—	—
Production 4)	15,593,000	12,399,000	12,684,000	125.8	122.9
Yield of lint per acre, in lb.	223.3	197.6	3) 179.3	113.0	124.5
Cotton ginned to 1 August 5)	142,983	41,130	88,771	347.7	161.1
Cotton ginned to 16 August 5)	515,000	208,509	294,690	247.0	174.8
Report referred to 1 September:					
Area left for harvest (acres)	6) 33,736,000	2) 30,028,000	2) 31,697,000	112.3	106.4
Crop condition (per cent. of normal)	75	59	3) 60	—	—
Production 4)	16,098,000	12,399,000	12,684,000	129.8	126.9
Yield of lint per acre, in lb.	228.5	197.6	3) 179.3	115.6	127.4
Cotton ginned to 1 September 5)	1,874,674	1,374,247	1,072,995	136.4	174.7
Cotton ginned to 16 September 5)	4,261,422	3,709,965	2.657,216	115.0	160.6
Report referred to 1 October:					
Crop condition (per cent. of normal)	79	62	3) 59	—	—
Production 4)	17,573,000	12,399,000	12,684,000	141.7	138.5
Yield of lint per acre, in lb.	249.3	197.6	3) 179.3	126.2	139.0
Cotton ginned to 1 October 5)	8,200,201	6,031,950	5,069,634	136.9	162.9
Cotton ginned to 18 October 5)	11,068,285	8,569,476	7,749,691	129.2	142.8
Report referred to 1 November:					
Production 4)	18,243,000	12,399,000	12,684,000	147.1	143.8
Yield of lint per acre, in lb.	258.8	197.6	3) 179.3	131.0	144.3
Cotton ginned to 1 November 5)	13,164,096	9,882,530	9,477,531	133.2	138.9
Cotton ginned to 14 November 5)	14,949,000	10,767,140	10,612,133	138.8	140.9

1) Area in cultivation on 1 July less the ten-year (1927-36) average abandonment 2.3 per cent. — 2) Area actually harvested. — 3) Ten-year (1926-35) average. — 4) In bales of 478 lb. net weight and exclusive of linters. — 5) In running bales, counting round bales as half bales and exclusive of linters. — 6) Area in cultivation on 1 July less 1.3 per cent. of abandonment.

Haiti: Total ginned cotton exports in the fiscal year 1 October 1936 to 30 September 1937 were 118,865 centals (24,867 bales) against 126,860 (26,540) last year, a decrease of 6 per cent.

St. Vincent: The close season terminated on 15 August, 1937, and planting operations immediately began in spite of very unfavourable weather conditions. The dry season was unusually prolonged and the total rainfall for August and September was rather less than 65 per cent. of the average. By the end of September, 45,757 lb. of seed had been sold by the Government Cotton Ginnery, as compared with a total of 37,949 lb. in 1936; percentage: 120.9. Germination on the whole was quite fair, but subsequent growth suffered. This was especially marked in the Seward districts where much supplying, and even replanting, in extreme cases, was necessary, but surprisingly good stands were obtained on the Windward side. By the end of September growth was generally fairly satisfactory. It was reported that there had been a marked reduction in the incidence of angular leaf spot disease as compared with early growth in 1936, and that the plants presented a very clean, healthy appearance. This may, perhaps, be attributed to the mercuric chloride treatment of the seed, which was omitted in 1936. As a result of the severe weather conditions most growers have been unable to plant as large an area as they had hoped, and in consequence the total acreage shows a reduction as compared with that of last year.

India: Cotton picking in the Punjab was in progress on 12 November 1937. Crop condition in the system of the province was 88 per cent. of normal.

Indo-China: In Annam, the crop looked very well at the end of September in certain districts (Binh-Thuân), and flowering was beginning in others (Ninh-Thuân).

Egypt: In the first fortnight of October the opening of the bolls still on late crops progressed normally under good weather conditions Picking was finished in Upper Egypt and south of the Delta, except in a few districts where the second picking is beginning. North of the Delta, the first harvest was practically finished and the second well advanced At the beginning of November the harvest was completed throughout Egypt Unit yields are definitely better than last year, when they were very good Ginning outturn is equal to or better than last year

Percentage of cotton bolls attacked totally or partially by *Pectinophora gossypiella* and *Earias insulana* up to 15 October:

Varieties	1937 Per cent	1936 Per cent
Sakellaridis	41	56
Maarad	48	56
Giza 7	39	55
Ashmûni and Zagôra	26	39

Cotton ginned up to the end of October, in bales of 478 lb net weight, was as follows

Varieties	1937	1936	1935	1934	1933	1932	1931
Sakellaridis	21,068	32,189	42,144	42,230	30,868	42 924	45 634
Other varieties above							
1 3/8″	191,833	164 892	108,458	73 439	40 060	29,433	339,710
1 1/4″	11 126	10,167	13,772	13 214	17 616	22,305	
1 1/8″	511 825	573,386	507,367	419,740	418 861	203,699	
Total	735,852	780,634	671,741	578,641	507,405	298,361	385,344
Scarto	10,965	14,025	11 708	10,177	7,469	6,054	8,677
Total production (including *Scarto*)	*) 2,308,600	1,887,200	1,768,600	1,565,600	1,776,900	1,027,000	1,317,300

*) First estimate

Nigeria: In September it was expected that, if weather conditions remained favourable to cotton growing during October, the crop would be at least equal to that of last season

Uganda. The acreage planted to the end of September was estimated to be 1,676,000 as compared with 1,412,000 acres planted to the same date last year. Percentage: 118 7. The above figure is subject to revision when the 1937 mean plot size for all district has been ascertained, but there is no doubt that the acreage under cotton in Uganda is larger than it was last year The condition of the crop, although not good in some areas was, on the whole, reasonably satisfactory

Tanganyika: In September weather conditions generally were hot and dry throughout the territory. A partial failure of the Mwanza cotton crop was reported, and it was expected that the final figures would probably be 33 per cent below original estimates.

Current information on hemp.

Italy The hemp crop is regarded as satisfactory

Yugoslavia It is forecast that the production of hemp for fibre will be satisfactory in quantity, but quality is reported as rather bad, owing to excessive rain in September and October

Area and production of hemp.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100				1936 = 100	Average = 100
	1,000 acres					1,000 pounds				
					Fibre					
Germany 1)	19	14	2	133 2	775 6		9,929	2) 8,238		
Austria	3)	1	1	81 3	59 2	176	184	286	95 7	61 6
Bulgaria	21	16	13	132 0	162 1	8 448	7,288	5,012	115 9	168 5
France		9	7				9,524	6 995		
Italy	214	185	147	115 7	145 9	237 741	192,372	129,883	123 6	183 0
Poland	85	83	80	101 4	106 0	.	26,875	25,331		
Romania		124	117			.	64,433	55,793		
Czechoslovakia	18	18	19	96 9	93 6	8,929	12,711	12,005	70 2	74 4
Yugoslavia		132	83				114 532	64 473		
U S S R .	4) 1,511	1,517	1,812	99 6	83 4			367 997		
Syria & Lebanon		5	6				3,237	3,410		
					Hempseed					
Germany	19	14	2	133 2	775 6		7 604	4 308		
Austria	3)	3)	3)	95 2	120 0	132	127	104	104 2	126 8
Bulgaria	21	16	13	132 0	162 1	9,714	5,325	3,755	182 4	258 7
France		9	7					1 859		
Italy	—	—	—	—	—	6,100	7 758	4 620	78 6	132 0
Poland	85	83	80	101 4	106 0	.	42,896	39 009		
Romania		124	117				50,919	43,865		
Czechoslovakia	18	18	19	96 9	93 6	5,634	8,379	7,918	67 2	71 2

1) Corresponding data of production expressed in terms of air dried stalks (Rohstengel) are as follows 1936 — 49 644,000 lb 1935 — 41,191,000 lb — 2) Year 1935 — 3) Area less than 500 acres — 4) Area forecast by the plan

Current information on hops.

France The good quality of the present crop is confirmed, and almost the entire crop was sold at the end of October

Hungary By the end of October hop picking was finished, Yields are rather above average.

Yugoslavia The general weather conditions of the year and the frequent rains of September and October in particular were unfavourable for hops in the banovines of the Drave and the Danube which are important areas of production It is reported that more than 50 per cent of the crop was destroyed by *Peronospora.*

Owing to the poor quality of the outturn, the demand for Yugoslav hops on foreign markets has declined considerably and prices, despite the small outturn, are lower.

Area and production of hops.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
	1,000 acres			1936 = 100	Average = 100	1,000 pounds			1936 = 100	Average = 100
Germany	23	25	24	89.5	96.4	...	22,271	15,285	...	...
Austria	...	1)	1)	...	...	...	60	98	...	...
Belgium	2	2	2	95.9	122.8	...	3,172	1,924	...	...
France	...	5	5	...	...	...	3,646	3,439	...	...
Hungary	...	1)	1)	...	...	...	199	166	...	...
Poland	9	8	2) 6	107.0	141.8	...	4,268	2) 3,220	...	...
Romania	...	1)	1)	...	...	...	22	46	...	...
United Kingdom: Engl. and Wales.	18	18	18	98.8	101.4	...	28,224	24,192	...	...
Czechoslovakia	29	29	28	98.0	102.0	...	27,007	17,994	...	...
Yugoslavia	...	7	5	...	...	...	4,327	3,175	...	...
U. S. S. R.	12	10	3) 2	124.3	503.8	—	—	—	—	—
Canada	...	1	1	...	...	...	1,603	1,334	...	...
United States	35	31	30	111.1	117.1	44,400	23,310	36,426	190.5	121.9

1) Area under 500 acres. — 2) Average 1932 to 1935 — 3) Average 1934 and 1935.

Current information on tobacco.

France: The drying of tobacco, whose quality is perfect, was in progress at the end of October in good conditions.

Greece: The dry conditions of the summer were favourable for the tobacco crop, the quality this year being very good in all parts The decrease in area and yields, however, indicate that production will be below the very plentiful outturn of last year though larger than earlier crops.

Harvesting and curing were done in favourable conditions in nearly all parts. At the beginning of October harvesting had not been finished in the higher districts of Drama, Rhodope and Cavalla where crops suffered from hail.

Hungary: Tobacco picking was finished by 26 October Yields are generally above average.

Irish Free State: The tobacco crop promises a better yield than in any recent year.

Italy: Forecasts of a good tobacco crop are confirmed.

Yugoslavia: Frequent rain in September and October was very favourable for the tobacco crop, particularly in the banovine of Primorze, where production this year is reported to be of record size. Production is also reported as large in the banovine of Vardons. But the quality in both areas is reported to be poorer than in recent years.

Argentina: Weather conditions in October were fair for transplanting tobacco in Córdoba, Tucumán and Salta. In Catamarca this operation was made difficult by drought. In Salta and Corrientes an increase in acreage compared with last year was anticipated.

Canada: According to a recent report of the Department of Agriculture, the tobacco acreage in 1937 was 18.9 per cent. greater than last year and 34.0 per cent. above the 1931-35 average. Production is larger by 54.8 per cent. and 46.5 per cent. respectively. The bulk of the crop is grown in Ontario where there was an increase of approximately 24 per cent. in acreage over 1936, the greater part of the inrease occurring in the flue-cured type on account of the low yield of 1936, the shortage of stocks and the steadily increasing demand for this type. With exceptionally favourable weather conditions throughout the harvesting season, this variety showed superior leaf quality for all districts. The crops of Burley and dark tobacco also appear to have turned out satisfactorily. In Quebec, the warm growing season of 1937 was beneficial for tobacco and growers were able to harvest crops that were fully developed and in good condition. The small crop of British Columbia is reported to be of good average quality.

Area and production of tobacco.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100	1937	1936	Average 1931 to 1935	% 1937: 1936 = 100	% 1937: Average = 100
	1,000 acres					1,000 pounds				
Albania	...	4	3	...	...	...	3,182	2,613	...	..
Germany 1)	32	32	29	101.4	111.8	...	72,501	66,015	...	. .
Belgium	6	7	7	93.1	87.1	...	13,366	15,115	...	...
Bulgaria	101	106	69	94.7	146 3	69,055	93,098	53,785	74.2	128 4
Greece	226	273	187	82.7	120.7	140,624	178,506	94,883	78.8	148 2
Hungary	35	37	49	96.1	71.3	46,751	50,327	61,474	92.9	76.1
Italy	80	80	92	99.8	86.8	94,799	96,783	100,909	97.9	93 9
Poland	...	15	12	...	...	...	23,753	18,432	...	...
Romania	..	45	32	...	...	..	33,219	19,227	...	...
Switzerland	...	1	1	...	..	...	1,543	2,088	. .	...
Czechoslovakia	24	24	24	98.6	99.1	...	33,229	30,860	...	...
Yugoslavia	...	44	35	...	. .		36,650	23,939	...	..
U. S. S. R.	503	501	510	100.3	98.6	...	608,478	2) 354,728	...	...
Canada	65	55	49	118 9	134.0	71,352	46,084	48,701	154 8	146 5
United States	1,690	1,437	1,596	117.6	107.7	1,485,000	1,153,083	1,266,355	128.8	117.3
Japan	85	87	86	98.1	99.7	142,750	142,353	145,813	100.3	97.9
Palestine	...	7	4	...	...	...	...	1,546	...	...
Syria and Lebanon	..	16	14	...	...	...	11,925	7,203	...	...
Turkey	...	148	124	...	...	138,892	99,208	77,690	140.0	178.8
Algeria	53	55	54	96.0	97.8	...	38,678	39,975	...	...

1) Production for sale — 2) Average 1931 to 1934.

Cuba: According to information received from the National Commission for Propaganda and Defence in Havana, the tobacco yield in the region of Vuelta-Abajo during 1936-37 reached 19,328,000 lb. (19,855,000 lb. in 1935-36). The yield included 18,419,000 lb. of tripe and 909,000 lb. of cape (19,284,000 lb. and 571,000 respectively in 1935-36). The area of land devoted to Vuelta-Abajo was about 42,700 acres (43,200 acres in 1935-36). The Semi-Vuelta crop reached 2,230,000 lb. in 1936-37 (2,607,000 lb. in 1935-36) and the area covered was 6,100 acres lb. as against 6,800 acres in 1935-36. The area of land devoted in the region Partido was about 1,800 acres in 1936-37 against 2,400 acres in 1935-36.

Turkey: The coming crop is estimated to be between 130 and 150 million lb. including 84 to 88 million lb. from the Izmir area, but official statistics are not yet available. In view of the fact that tobacco producers are required by existing laws to eliminate all damaged and unusable leaves (green, blackened and scorched) from their stocks, it is believed that the new crop coming on the market will amount to 140 million lb. To judge from the condition and the varieties in quality, the crop was not entirely successful. The quality of the crops in the Aegean area has suffered in particular from the summer drought. Prospects of disposal of the new crop are rather promising owing to the interest taken by large firms and the likelihood of free trading and the market situation is easier as a result of the possibility of removing stocks.

Nyasaland It was reported in September that tobacco nurseries in the Southern Province were doing well, and it was expected that planting out would begin about the end of November.

Current information on other products.

Cacao.

Brazil According to the Cacao Institute of Bahía the production of cacao in the 1937-38 season in the state of Bahía is estimated at about 2,646 000 centals, approximately equal to last season's production

Haiti Total cacao exports in the fiscal year 1 October 1936 to 30 September 1937, were 31,600 centals against 36,200 last year - a decrease of 12 per cent

Trinidad In September the weather continued ideal for the young cacao, and a good crop was expected in spite of witchbroom

Gold Coast and Togoland under British Mandate MAJOR CROP 1937-38 -- The statement, made in the previous Report, that less cacao would be available at the beginning of this season than was the case in 1936-37 is confirmed for all districts. The crop situation in the second half of September was as follows

Ashanti - Weather conditions were favourable for growth and pod development but most unfavourable for drying owing to the number of wet days being well above the 10 year average This also seriously interfered with harvesting and therefore to some extent with marketing as it was difficult to prepare cacao for sale. Quality was stated to be fairly good but since large numbers of ripe and over-ripe pods were still to be seen on the trees the probability was that it would deteriorate should wet weather continue and harvesting be further delayed It was estimated that about 1.5 million lb had been marketed and 16.8 were in farmers' hands at the end of September

Western Province - Weather conditions had the same effects as in Ashanti and movement was reported to be almost at a standstill The cacao which was available was only of fair quality

Central Province - The weather had not such adverse effects on normal operations as was the case in Ashanti and the Western Province, and conditions were favourable for growth though only moderate for harvesting and drying. The fall in price resulted in marketing and movement being considerably slowed down. A new round system having been opened up in the Swedru district and

Swedru buyers having established themselves in almost every village, it was stated to be probable that a considerable quantity of cacao, formerly exported through Saltpond, would now be diverted to Winneba It was estimated that about 2.2 million lb. had been marketed and 4.5 were in farmers' hands at the end of September As usual at that time of year the cacao was under-fermented and contained a quantity of slaty beans

Eastern Province. — The ranfall in the Nsawam-Kibi district was adequate and the possibility of the continued drought affecting the crop in this area had become remote Weather conditions obtaining throughout the province were similar to those in Ashanti and the Western Province Heavy rains seriously impeded harvesting, drying and marketing but it was stated that they should be beneficial for growth and pod-development The delay in harvesting was expected to cause a deterioration in quality and since cacao already picked could not be properly dried it was thought to be probable that some mould would result. The drop in prices did not deter marketing as farmers had only very small quantities ready for sale. Quality was only fair It was estimated that 17.2 million lb had been marketed and 17.0 were in farmers' hands at the end of September.

Trans-Volta. — In the Northern section, Jakisan-Ahamansu, weather conditions interfered to a large extent with harvesting and drying but were favourable for growth There was little movement, although the drop in price at the end of August brought about a small rush to sell Quality was reported to be good. About 0.7 million lb had been marketed and 1.0 were in farmers' hands. In the Southern section a new flush of flowers had appeared on the young farms Conditions were favourable for pod-setting and growth although only moderate for harvesting and drying It was stated to be possible that, given normal weather, these pods might mature and prolong the season. The decline in price had not affected marketing to any extent The quality was reported to be fairly good although small flat beans were in evidence, caused by the dry weather earlier in the season

Movement — Movement in September was as follows

	Sept 1937	Sept 1936
	(million pounds)	
Railway off-loading, Takoradi	2.6	13.2
Exports		
Takoradi	11.1	12.5
Accra	13.7	15.2
Other ports	3.3	4.1
All ports	28.1	31.8
Eastern Frontier	–	0.1
Total exports	28.1	31.9

Nigeria It was reported in September that marketing of new crop cacao was expected to begin about the middle of October, and it was throught likely that the supplies available would be at least equal to last season's crop

Tea.

U. S. S. R. According to the most recent estimate, the area cultivated to tea this year is about 107,000 acres against 95,000 in 1936 and 75,000 on the average of the five years ending 1935, percentages, 112.7 and 143.8. The corresponding production is estimated at about 13 503,000 lb against 10 847,000 and 2,785 000, percentages, 124 5 and 484 8

India In North India weather conditions were generally seasonable during September and crop prospects were fair to good In South India, heavy north-east monsoon weather was experienced and crop prospects were favourable

In North India, statistics to the end of September recorded an increase of 10 946,500 lb. as compared with the outturn to the same date last year In South India the outturn was 14 2 per cent ahead of that to the same date last year

Indo-China In Tonkin, tea picking progressed normally at Phu the and production was quite large at Thanh ba the crop had grown well

Nyasaland It was reported in September that the new tea season opened auspiciously after good rainfalls in all areas

Coffee.

Brazil According to the *Departamento Nacional do Café* the total quantity of coffee removed from the market from 1931 to the end of October 1937 was 71 752 000 centals Quantities destroyed in September and October were 1 501 000 centals and 2 244 000 centals respectively The quantity of coffee held at Brazilian ports on 31 October 1937 was 4 178 000 centals including 2 681 000 centals at Santos

Haiti The total coffee exports in the fiscal year 1 October 1936 30 September 1937 were 546 900 centals against 795 700 in the previous year a decrease of 31 per cent due to the poor results of the last coffee season

Nicaragua Weather conditions in the 1937 38 season have been variable According to the report for September the prospects for the crop this season are average.

Indo-China In Tonkin the crop was good at the end of September

French Equatorial Africa The condition of coffee plantation on 1 October was average

Côte d'Ivoire According to the September reports the production of coffee in the 1937 38 season is estimated at 216 200 centals against 144 400 last season The acreage of coffee plantations in 1937 38 is 77 100 against 75 670 acres in 1936 37

Kenya According to reports of 1 November the production of coffee in the 1937 1938 season is estimated at 502 900 centals a decrease of 30 900 from the previous estimate compared with a yield of 362 300 in 1936 37 Weather conditions in October were generally favourable for coffee crops

Uganda It was reported in September that the main coffee crop was being picked and arrivals were heavy

Sierra Leone Weather conditions in September were quite favourable for the coffee crop whose condition was average

Tanganyika It was reported in September that the bulk of the Bukoba coffee crop had already been exported and showed an increase over last year of 50 per cent The Arusha Moshi main coffee crop was being picked

Groundnuts.

Bulgaria Statistics relating to groundnuts have been issued since 1926 when the crop first reached considerable dimensions In 1930 and 1931, however, cultivation was almost abandoned but since 1932 it has expanded rapidly The area cultivated to groundnuts this year is about 7,950 acres against 4,180 acres in 1936 and 1,370 acres on the average of the five years ending 1935; percentages, 190.5 and 580.0. The corresponding production is estimated at about 63,500 centals against 43,800 centals and 12,000 centals, percentages, 144.9 and 529.1.

Argentina: The planting of groundnuts was in progress in October in the centre of Córdoba and the north of Sante Fé and Entre Ríos.

United States: According to the estimate of 1 November, the production of groundnuts this year is about 1,277,000,000 lb. against 1,300,540,000 lb. in 1936 and 1,098,872,000 lb on the average of the five years ending 1935, percentages, 98.2 and 116.2.

Indo-China: The harvest was in progress at the end of September in some districts of Tonkin (Tanh hoa), where floods rotted part of the nuts in low plantations. In Annam, growth was normal and nut-formation in progress in parts (Quang-nam) In Cambodia (Oudong district), the harvest was in full swing and a good crop was confirmed

Java and Madura. The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details of the groundnut area

	1937 acres	1936 acres
Area harvested in September	42,000	50,200
Area harvested from 1 January to 30 September	300,100	395,100
Area of standing crops at the end of September .	162,000	100,500

Egypt At the end of October about half the groundnut crop was harvested The yield per acre was expected so far to be 5 per cent above the average.

Nigeria It was reported in September that recent rains had been favourable to the growth of the new groundnut plants.

Colza and sesame.

Germany The crop condition on 1 November in the system of the country, compared with the same date last year, was for winter colza 2.4 (2.8) and for winter rape also 2.4 (2.8). According to the most recent estimate, the area cultivated to colza this year is about 99,000 acres against 102,000 in 1936 and 116,000 on the average of the five years ending 1935 percentages, 96.7 and 85.1 The corresponding figures for rape are as follows 32,600 acres, 32,700 acres and 33,300 acres, percentages, 99.8 and 98.0

Bulgaria According to the most recent estimate, the area cultivated to colza this year is about 14,000 acres against 6,540 in 1936 and 26,050 on the average of the five years ending 1937, percentages 227.8 and 57.2. The corresponding production is estimated at about 126,300 centals (252,600 bushels) against 41,650 (83,300) and 196,100 (392,100), percentages, 303.3 and 64.4

Area cultivated to sesame this year is about 12,960 acres against 17,430 in 1936 and 21,760 on the average of the five years ending 1935, percentages, 74.4 and 59.6. The corresponding production is estimated at about 22,300 centals (1,100 short tons) against 60,700 (3,000) and 64,000 (3,200), percentages, 36.7 and 34.8.

Greece: According to the most recent estimate, area cultivated to sesame this years is about 95,300 acres against 102,200 in 1936 and 87,200 on the average of the five years ending 1935; percentages 93.3 and 109.3. The corresponding production is estimated at about 242,000 centals (12,000 short tons) against 304,000 (15,000) and 147,000 (7,000); percentages 79.9 and 164.9.

Hungary: On 26 October, winter colza showed good sprouting and a very satisfactory appearance. In many places, there was already an exuberant vegetation.

Poland: On 15 October condition of winter colza was 3.8 against 3.4 at the corresponding date last year.

Romania: At the end of October winter colza was looking very well.

Czechoslovakia: Winter colza shows very good growth.

Yugoslavia: Colza production this year will be rather poor owing to the decline in area and to the damage caused by bad weather. The poor outlock has given rise to a likely demand for colza and the increase in the price has induced growers to sow a larger acreage to winter colza. At the beginning of November, the crop condition of winter colza was rather poor owing to cold weather and the heavy rain of October.

India: The area cultivated to sesame this year is 2,766,000 acres, according to the second estimate, as against 2,544,000 last year and an average of 2,577,000 in 1931-35. Percentages, 108.7 and 107.3. The crop condition is on the whole fairly good.

Indo-China. The harvest was good in Annam. In Tonkin, the yield was 2.4 to 4.0 centals per acre in certain districts (Langsam)

Current information on fodder crops.

Germany: As a result of good weather conditions, in certain districts it has been possible to leave livestock on pastures Fodder production this year is very large and of good quality The condition of clover and pasture was respectively 2.7 and 3.0 on 1 November 1937 against 2.7 and 2 9 on 1 October 1937 and 2 6 and 2.9 on 1 November 1936. According to recent estimates, the area of fodder maize this year was about 166,000 acres against 140,000 acres in 1936 and an average of 101,000 acres in the previous five years, percentages, 114.2 and 163.0.

Belgium. During October the weather was fine and mild with only a few, light showers. Yields of mangels are on the whole good. Chou-moellier which has been much more widely grown this year, has given a very high yield. The turnip crop is good. Clover is on the whole a good crop but in some parts is rather unsatisfactory owing to drought. Meadows and pastures continued to be luxuriant and provided plenty of feed.

Bulgaria: According to the latest estimates for 1936 and 1937, the area cultivated to mangels and vetches and black peas this year shows a considerable increase, particularly for the latter, compared with last year. The acreages under millet and alfalfa show, on the other hand, a reduction. The production of these principal fodder crops in 1937 with comparative figures for 1936 and the average of 1931-35 are given here:

		1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
Vetches and black peas	(000 centals)	8,686	4,698	6,301	184.9	137.8
	(000 sh. tons)	434	235	315		
Alfalfa hay	(000 centals)	3,270	4,071	3,399	80.3	96.2
	(000 sh. tons)	163	204	170		
Millet (feed)	(000 centals)	1,341	2,378	1,323	56.4	101.4
	(000 sh. tons)	67	110	66		
Mangels	(000 centals)	3,784	2,232	939	169.6	403.2
	(000 sh. tons)	189	112	47		

Estonia: Up to the end of October the weather was mostly warm. The production of fodder was above average both in quality and quantity and feed for livestock was satisfactory.

France: The mild, wet weather of the end of October prolonged the late feeding season, and at the end of the month, meadows were still being used for pasture in all districts, the aftermath being abundant. But total production this year will on the whole be below average owing to the previous drought that affected the second crops in particular.

Greece: According to the latest estimates, the acreage this year under rotation meadows for hay for drying is 22.8 per cent. larger than last year and 57.9 per cent. above the average of 1931-1935. The area cultivated to clover, however, is 10.1 per cent. lower this year than last year but 21.1 per cent. above the average, according to the revised 1937 estimates.

The production of the main fodder crops was as follows:

					% 1937	
		1937	1936	Average 1931-35	1936 = 100	Average = 100
Rotation meadow (dried hay) . . .	(000 centals)	2,438	2,539	1,761	96.0	138.4
	(000 sh. tons)	122	127	88		
Clover (dried) . .	(000 centals)	1,789	1,722	1,067	103.9	167.6
	(000 sh. tons)	89	86	53		
Permanent meadow (hay).	(000 centals)	3,138	3,571	2,316	87.9	135.5
	(000 sh. tons)	157	179	116		

Hungary: The third and, in places, the fourth clover cut and the fourth and in some places, the fifth alfalfa cut yielded good results Clover and alfalfa crops for seed produced variable yields. The mangel crop shows large and healthy roots Lifting and bringing in were being carried on at the end of October. Yields of vetch, mohar and fodder maize were very satisfactory and of good quality.

Aftermath of permanent meadows was poor in quantity and quality. Pastures have suffered from drought but both permanent meadows and pasture still afford a satisfactory bite for animals.

Irish Free State: The weather during the greater part of October was mild and dry. Feed supplies were adequate for all normal requirements, but milk yields were slightly below the average for the season.

Italy: Fodder crops benefited from heavy rain and were giving yields more than sufficient for the requirements of livestock. Feed supplies therefore were abundant in the first fortnight of October, except in Sardinia, where production was rather poor as a result of drought.

Latvia: As a result of the warm autumn, the second cut of clover and other grasses was satisfactory in quantity and quality.

Poland: The acreages of the principal fodder crops are as follows.

				% 1937	
	1937	1936	Average 1931 35	1936 = 100	Average = 100
		Area (1,000 acres)			
Mixtures of cereals and legumes . . .	393	292	(1) 266	134.4	147.8
Lupins	932	909	878	102.5	106.1
Field peas	150	122	130	122.6	115.8
Serradilla	669	662	655	101.0	102.1
Clover	2,138	2,372	2,212	90.1	96.6
Vetch and horse beans	341	305	325	112.0	104.9
Mangels and fodder carrots	634	613	530	103.5	119.7
Other feed crops	237	212	261	111.9	90.8

(1) Year 1935.

The preliminary estimates of the yield of the first cut of clover and natural meadows, compared with those of last year and with the quinquennial average are as follows.

		1937	1936	Average 1931 1935	% 1937 1936 = 100	% 1937 Average = 100
Clover (first cut) . .	(000 centals)	27,337	49,855	32,990	54.8	82.9
	(000 sh tons)	1,367	2,493	1,649		
Permanent meadows (first cut) . . .	(000 centals)	116,404	132,630	129,849	87 8	89.6
	(000 sh tons)	5,820	6,631	6,492		

The unit-yields of fodder beet vary between average and good

The second cutting of hay was carried out in favourable conditions according to 90 per cent of the agricultral correspondents

The condition of clover on 15 October was 3 1 against 3 2 at the same date last year

United Kingdom The weather in the first three weeks of October was exceptionally fine and dry, but during the last week rainfall was general with heavy falls in the southwest The amount of sunshine was below normal especially in eastern districts Root crops were affected by the lack of rain, their condition being moderate and size small, and mildew was reported from many districts, including parts of Scotland The yields per acre in England and Wales were estimated on 1 November as follows turnips and swedes 250 centals (12 ½ short tons) per acre, compared with 280 (14) last year and a ten-year average of 260 (13), mangels 390 centals (19 ½ short tons) against 430 (21 ½) and 410 (20 ½)

Pastures tended to became bare but improved with the late rains, and are holding out reasonably well

Czechoslovakia The mangel crop is plentiful but in many areas wet and in danger of rotting The fodder crops from fields for both green and dry feed were very large Meadows are being mown a third time in some districts Clover stubble is yielding a second and alfalfa a fourth cut Mixed stubble has also yielded well Pasture is plentiful

The area and production of the principal fodder crops and the yield of straw are shown below

Area (1,000 acres)

	1937	1936	Average 1931 to 1935	% 1937 1936 = 100	% 1937 Average = 100
Broad beans and horse beans (grain)	8	7	8	114 2	105 3
Vetch	50	50	33	100 7	153 2
Spring mixtures	137	143	102	96 0	134 4
Winter mixtures	7	10	8	76 7	92 2
Clover (hay)	1,892	1,930	1,820	98 0	104 0
Green fodder (hay)	330	307	390	107 3	84 6
Temporary meadows (hay) . .	67	07	78	96 4	86 2
Permanent meadows (hay) . . .	3,105	3,110	3,139	99.8	98 9
Leguminous and graminaceous feed crops (hay)	256	267	202	96 1	126 9
Cereal straw (barley, oats) for feed	3,578	3,453	3 652	103 6	98 0
Cereal straw (wheat, rye, meslin and spelt) for litter	4,503	4,801	4,742	93 8	94 9

Production.

		1937	1936	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
Broad beans and horse beans (grain)	(000 centals)	130	118	103	109.9	126.1
Vetch (grain) . . .	(000 centals)	601	607	358	99.0	167.9
Vetch (straw) . . .	(000 centals)	813	861	485	94.4	167.7
Spring mixtures (grain)	(000 centals)	2,193	2,315	1,448	94 7	151.5
Spring mixtures (straw)	(000 centals)	2,895	3,432	1,960	84 4	147.7
Winter mixtures (grain)	(000 centals)	104	126	105	82 3	98.5
Winter mixtures (straw)	(000 centals)	162	235	155	69.0	104 6
Clover (hay)	(000 centals)	82,271	100,595	61,398	81.8	134 0
	(000 sh. tons)	4,113	5,030	3,070		
Green fodder (hay) .	(000 centals)	10,552	10,651	9,119	99 1	115 7
	(000 sh. tons)	528	533	456		
Temporary meadows (hay)	(000 centals)	2,380	2,753	2,281	86 5	104 3
	(000 sh tons)	119	138	114		
Permanent meadows (hay)	(000 centals)	102,962	123,866	90,306	83.1	113 9
	(000 sh tons)	5,148	6,193	4,520		
Leguminous and graminaceous feed crops (hay) . . .	(000 centals)	4,779	5,571	3,394	85 8	140 8
	(000 sh tons)	239	279	170		
Cereal straw (barley oats) for feed . .	(000 centals)	68,418	75,501	70,970	90 6	96 4
	(000 sh tons)	3,421	3,775	3,548		
Cereal straw (wheat, rye, meslin and spelt for litter)	(000 centals)	105,824	147,386	122,309	71 8	86 5
	(000 sh tons)	5,291	7,369	6,115		

Argentina· In October the condition of rotation meadows and pastures was average in the corn growing area, except in the north of Santa Fé, the south of Córdoba and the national territory of La Pampa.

In the provinces of Santiago del Estero and Tucumán the situation, on the other hand, was precarious owing to drought.

Canada· The following are the latest estimates of production of certain fodder crops.

		1937	1936	Average 1931 1935	% 1937 1936 = 100	% 1937 Average = 100
Hay and Clover . .	(000 centals)	259,700	276,060	259,102	94 1	100 2
	(000 sh tons)	12,985	1,803	12,955		
Alfalfa	(000 centals)	41,920	39,320	32,362	106.6	129.5
	(000 sh tons)	2,096	1,966	1,618		
Fodder maize . .	(000 centals)	80,440	62,568	67,028	128.6	120.0
	(000 sh. tons)	4,022	3,128	3,351		
Trnips, etc. . . .	(000 centals)	36,334	38,208	35,485	95.1	102.4
	(000 sh tons)	1,817	1,910	1,774		

Egypt: Late sowing of clover in Lower Egypt and the early sowing in Upper Egypt are being carried out. The general sowing is almost finished in Middle Egypt although cutting of partial early areas was commenced in some of its regions. Irrigation and manuring of some of the early-sown cultivations are in operation. Germination and growth are satisfactory.

LIVESTOCK AND DERIVATIVES

The lamb feeding situation in the United-States.

According to the report of the Bureau of Agricultural Economics, the lamb feeding situation or 1 October 1937 was as follows. There was expected to be a large increase compared with last year in the number of lambs to be fed in the maize belt and Texas, whereas in the western States the number was likely to be considerably smaller. The total for the whole country in the 1937-38 season was thought likely to show a considerable increase over the number fed in the 1936-37 season, but the extent of the increase depended on the uncertain disposition of the Texas lamb crops.

In 1936 the feeding situation in Texas was very good and only a relatively small proportion were sold in the autumn of that year. The bulk were fed in the production area and sold as yearling lambs from March to June. This year the situation in Texas is much less favourable and sales and movements to 1 October were of record numbers. Many were sold for feeding in neighbouring states. Movements into Java of feeder lambs were 2 ½ times as large as last year up to 1 October, and were also a little larger, though below the average, into the maize belt States. Into the western states, however, they were smaller. In Colorado there were prospects of a slight increase in feeding.

The total slaughter from December 1937 to May 1938 may well be about the same as last season, but the distribution is likely to be considerably different.

The large number of Texas lambs to be fed this year will probably be marketed before, 1 March 1938, and shipments of grass fat yearling lambs from March to May, which were heavy last year, may be much smaller in 1938.

Livestock in Surinam.

YEARS	Horses	Asses	Mules	Cattle	Sheep	Goats	Pigs	Buffaloes
31 December 1936	470	1,219	173	20,439	517	4,204	6,937	60
31 » 1935	461	1,204	245	19,362	311	3,821	6,530	14
31 » 1934	393	1,165	264	18,882	476	3,673	6,231	30
31 » 1933	361	1,209	325	18,245	462	3,413	6,063	28
31 » 1932	281	1 108	206	16,085	259	3,532	5,693	0
31 » 1931	298	1,132	219	15,612	204	3,209	7,197	17
31 » 1930	297	1,049	229	15,146	216	2,961	5,435	17

Livestock, poultry and egg production in Chosen.

YEARS	Horses	Asses	Mules	Cattle	Sheep	Goats
31 December 1936	51 560	3 997	1 065	1 702 979	12 143	39 534
31 1935	52 608	4 369	1 269	1 679 470	9 388	34 395
31 » 1934	53,804	4 735	1,436	1 671,185	5 473	31 177
31 » 1933	52 924	4 890	1 462	1 663 136	2 675	28 652
31 » 1932	53 887	5 371	1 418	1 664 435	2 208	27 363
31 » 1931	54 100	5 389	1,595	1 637 019	1 609	25 601
31 » 1930	55 544	5 909	1,767	1 611 585	1 561	23,813

YEARS	Pigs	Fowls	Ducks	Turkeys	Hen eggs 1)
					000
31 December 1936	1 573 590	7 118 089	35 011	1 090	232 570
31 » 1935	1 616 408	7 117 147	37,772	1 117	226 874
31 » 1934	1 583 513	7 178 725	36 269	1 056	227 416
31 » 1933	1 425 142	6 868 037	28 656	1 150	214 982
31 » 1932	1 339 473	6 601 477	24 397	1 345	205 055
31 1931	1 348 199	6 294 672	21 430	1 210	198 169
31 1930	1 386 891	6 146 643	17 439	—	187 752

1) Production during the year

Livestock, poultry and egg production in Kwangtung Territory.

YEARS	Horses	Asses	Mule	Cattle	Sheep	Goats
31 December 1936	6 110	27 519	20 650	19 235	1 657	4 676
31 1935	7 351	22 907	26 863	20 691	1 345	5 275
31 » 1934	7 511	22 665	26 810	21 958	1 453	5 053
31 » 1933	7 131	24 511	25 706	23 126	1 100	5 436
31 » 1932	9 971	24 966	25 525	29 780	2 985	6 826
31 » 1931	9 157	24 285	26 777	27 188	2 830	6 465
31 » 1930	8 108	22 556	26 690	26 234	2 250	5 783

YEARS	Pigs	Fowls	Geese	Ducks	Turkeys	Hen eggs 1)
						000
31 December 1936	110 763	350 463	3 573	52 411	87	26 226
31 » 1935	108 890	329 915	3 011		163	22 085
31 » 1934	117 812	314 630	2 657	45 522	112	20 124
31 » 1933	131 829	318 347	2 331	46 201	56	17 427
31 » 1932	142 045	344 400	5 307	45 220	132	16 438
31 » 1931	143 347	297 512	4 397	39 283	106	9 619
31 » 1930	132 869	278 196	3 973	35 973	85	9 039

1) Production during the year

Native Livestock in the Netherlands Indies.

a) Java and Madura.

YEARS	Horses	Cattle	Cattle on dairy farms	Sheep	Goats	Pigs	Buffaloes
1936	226 474	3 530 166	23 493	—	—	—	2 039 094
1935	222 296	3,602 212	22 609	—	—	—	2 044 784
1934 . .	230 586	3 839 687	22 108	—	—	—	2 101 172
1933 . .	236 943	4 079 349	21 612	—	—	—	2 144 411
1932	247 342	4 124 651	20 976	1 588 023	3 421 665	113,486	2 195 912
1931	250 187	3 755 672	20 299	—	—	—	2 258 022
1930	249 435	3 642 190	18 125	—	—	—	2 125 629

b) Outer Provinces.

YEARS	Horses	Cattle	Cattle on dairy farms	Sheep	Goats	Pigs	Buffaloes
1936	429 556	872 037	16 313	—	—		1 172 922
1935	419 706	873 621	17 177	—	—	—	1 128 221
1934	407 352	861 598	15 949		—	—	1 116 767
1933	413 109	883 280	15 049	—	—	—	1 149 029
1932	433 496	907 595	17 213	215 944	646 898	1 146 300	1 157 110
1931	405 255	925 589	10 327		—	—	1 133 417
1930	431 633	911 912	—	—	—	—	1 152 443

Livestock in New Zealand.

Livestock statistics for 1937 and the preceding four years are here given

	1937	1936	1935	1934	1933
Horses	277 799	276 170	272 086	273 906	276 897
Total cattle	4 389 101	4 254 078	4 293 409	4 301 128	4 192 023
Dairy cows (in milk and dry)	1 935 524	1 951 507	1 952 004	1 932 511	1 845 972
Sheep shorn in season ending June	27 319 185	26 278 477	25 639 054	25 017 050	25 069 409
Lambs shorn in season ending June	4 263 403	3 018 648	3 529 202	3 508 008	2 629 837
Lambs tailed in season ending June	16 866 021	15 666 617	15 680 402	15 278 707	15 015 628
Sheep including lambs 1)	31 305 818	30 113 704	29 076 754	28 649 038	27 755 966
Pigs	802 419	808 403	762 755	666 303	591 582

1) On 30 April. The other livestock numbers are as on 31 January.

The most important item to be noted is the number of sheep which, at 31,305,818 is the highest in the history of the Dominion. The previous highest was 30,841 281 in 1930. The number of cattle at 4 389,101 is also a record figure, the previous highest having been recorded in 1930 when it was 4,301,128. The number of pigs shows a slight decrease from the record of last year. But the number of horses continues last year's slight recovery from the decline that had continued for a quarter of a century.

Current information on livestock and derivatives.

France: At the end of October, livestock were still underfed as a result of the summer drought. The epidemic of foot-and-mouth disease, which was slackening, also caused deterioration in their condition. The seasonal decline in milk production is above normal.

There is also reported a rather heavy drop in the number of farm stock.

Latvia: Milk production in October was at a slightly a lower level than in September but higher than it was at the same period last year.

Netherlands: In October feed for livestock was fairly good to good; in some provinces (Friesland and North Holland) it was even very good Compared with the corresponding month of last year milk production in the country as a whole was about 8 per cent less. The decrease in the various provinces was as follows: 5 per cent. in Friesland, Drente, Overijssel and Limburg, 7 ½ per cent. in Groningen Gelderland, North Holland and North Brabant, 10 per cent. in South Holland and Zeeland and over 10 per cent in Utrecht.

United Kingdom It is not anticipated that there will be any material change in the numbers of cattle and sheep to be fattened this winter, but in some areas there were reports of a slight increase in the number of ewes kept for breeding. Both cattle and sheep made progress during the month but milk yields are more difficult to maintain then usual The outlook in Scotland is good, with plenty of keep

Switzerland The Office of Price Statistics of the Swiss Farmers' Union reports that, under the very favourable conditions for pasture, the yield of milch cows in September was very good The average of 536 milk and cheese societies report an increase in deliveries of 4 4 per cent compared with September last year This increase occurred in almost all the cantons. Compared with the quantity delivered in September 1913, the increase is about 20 per cent

Argentina: The condition of livestock is on the whole satisfactory, except in the provinces of Santiago del Estero, Tucumán and the national territory of Chaco, where drought has considerably reduced feed supplies In October the shearing of sheep was in progress with yields varying from below average in the centre to satisfactory in the coastal provinces

Union of South Africa In the north-west of Cape Province conditions were causing anxiety at the end of September In most cases stock have had to be moved to secure better grazing, while maize is practically the only available feed. Wool was of exceptionally good quality. On the south coast, following heavy rains, stock were in good condition. In the Karroo the drought situation was serious. Heavy stock losses had occurred, and the lamb crop was poor, but wool prospects were on the whole good In Bechuanaland conditions at the end of September were dry but still favourable. In Griqualand West the situation was bad. Stock were already in poor condition from drought On the border conditions varied but cattle, on the whole, were in good condition. Light rains fell in September in the Transkei but more were needed to improve pastures. In Natal heavy stock losses from drought occurred in September in the highveld, whereas in the midland area losses had occurred from rains and a cold spell with sharp frosts. In the Orange Free State the severe drought was not broken by light rains at the beginning of September. Water supplies were running low and hay was the only feed. Stock were in very poor condition. Pros-

pects for rain were favourable, but if it did not come the farmers' situation would be desperate. In Transvaal fine rains on the highveld greatly improved conditions in September. The veld is fine and stock, though still weak, were rapidly improving. In the centre and western highveld, however, it was still very dry and animals were in poor condition. In the lowveld conditions were better with fine rains, but cold weather had caused losses.

The world silk situation.

I. — WORLD PRODUCTION OF COCOONS IN 1937.

The following is a summary of the 1937 silk year based on official data contained in the table below and on private estimates and other information received by the Institute.

In Japan, temperatures during the winter were frequently high and the growth of mulberries for spring rearings was generally good and in places above normal. Frosts and insects did not cause serious damage. Weather conditions were generally favourable for spring rearings, but rather unfavourable for the growth of mulberries and the summer-autumn rearings owing to drought and damage caused by rain in the middle of September. The quantity of eggs placed in incubation for the spring rearings, which had shown an almost continuous increase up to 1933 when it reached a maximum, decreased considerably from then until 1936 In 1937, however, there was a slight recovery. The quantity of eggs placed in incubation for the summer-autumn rearings, which have also tended to decrease during recent years, was below that of 1936. On the whole, the quantity of eggs placed in incubation this year was 1.7 per cent below that of 1936 and 13 7 per cent. below the 1931-

Production of fresh cocoons.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 % 100	Average = 100				1936 = 100	Average = 100
	1,000 ounces					1,000 pounds				
Bulgaria	31	26	26	119 5	118.0	3,616	3,025	2,924	119.6	123 7
France	13	13	17	96.5	74 3	1,412	1,486	2,010	95.1	70.3
Greece	62	57	58	107.8	105.8	6,617	5,993	4,839	110 4	136.8
Italy	1) 542	465	510	—	—	70,438	71,257	67,683	98.9	104.1
Chosen s)	206	208	220	98.7	93.6	31,975	32,812	31,073	97 4	102 9
Chosen t)	148	140	131	105.7	112.8	18,173	18,009	14,693	100 9	123.7
Japan s)	2,339	2,295	2,726	101.9	85.8	376,198	339,980	399,551	110.7	94.2
Japan t)	2,713	2,843	3,130	95.4	86.7	307,822	343,183	356,059	89.7	86.5
Syria and Lebanon	32	32	49	100.5	66.2	2,538	2,108	3,784	120.4	67.1
Totals	**6.086**	**6.079**	**6.867**	**100.1**	**88.6**	**818.789**	**817.853**	**882.616**	**100.1**	**92.8**

s) Spring cocoons. — t) Summer-autumn cocoons. — 1) Approximate figure, referring to the quantity of eggs distributed to producers

1935 average. The total production of cocoons is practically equal to that of last year and 9.5 per cent. below the average. Yields this year were greater than those of 1936 and the average. In 1937, 136 lb. of cocoons per ounce of eggs placed in incubation were obtained, whilst in 1936 the yields was 133 lb. and the five-year average was 129 lb.

In Italy, mulberry production was below average but more than sufficient to cover rearing requirements. During May, and the first days of June, the season was generally favourable for rearing, which developed normally at this period: during the second half of June, however, weather was unfavourable owing to high temperatures and there was a considerable mortality of silk worms. In some important producing areas disease caused some damage, due particularly to the muscardine which made an appearance even in higher districts where it is rarely found. Consequently, despite the increase in the quantity of eggs placed in incubation over 1936, the production of cocoons was only about equal to that of the previous year It is of interest to note that this year autumn rearings were undertaken for the production of white cocoons with apparently good results. The present total production of cocoons in Italy is still a good deal smaller than the average of the years 1926-30 (about 110 million lb). But, during the years 1936 and 1937, there was an appreciable increase compared with the two previous years as a result of the steps taken by the authorities to assist sericulture, in particular those guaranteeing a minimum price to rearers and export bonuses

As for China, no direct information on the volume of total production this year is available. Private information indicates that the spring crop, which at the beginning of the season was expected to be larger than that of the previous year, was later estimated to be equal to it, and therefore satisfactory It appears that the excessive moisture brought by the heavy rains impeded the normal development of the mulberries with the result that the crop of leaves was insufficient for requirements. The autumn crop was expected to show a good yield but it is difficult to ascertain what the actual results were, as many spinning factories have been forced to suspend work owing to the Sino-Japanese hostilities

In the U. S S. R , according to the Government's plan, State cocoon purchases in 1937 were to reach 52 2 million lb compared with 46 7 million lb in 1936. On 10 June they had reached 15 million lb. of cocoons from the new production, including 13 million lb in the Central Asian Republics and the remainder in Transcaucasia During the second decade of June, purchases had begun in the new areas of production, namely Ukraina, the Azov-Black Sea region, Crimea and Transvolga.

In Chosen, the outturn of spring cocoons is estimated at 32 million lb or about 3 per cent. above the average, but below the level of last year The results of the spring rearings are estimated to be good and above normal. Autumn rearings, which are growing continuously, also gave good results, though yields are not equal to those of 1936. The production of autumn cocoons was more than 18 million lb. or about 24 per cent. above the average, and about equal to that of 1936. In all, the quantity of eggs placed in incubation this year was 1.5 per cent. larger than that of 1936 and 0.8 per cent. above the average, whilst the production of cocoons was 1.3 per cent. below that of last year, but 9.6 per cent. above the 1931-35 average. The yields in 1937 were 142 lb. of cocoons per ounce of eggs placed in incubation against 146 lb. in 1936 and an average of 131 lb.

The situation in the producing countries of lesser importance is as follows.

In Bulgaria, the season began unfavourably, incubation being appreciably delayed by rain and low temperatures. Supplies of leaves, despite damage caused by hail in some areas, was generally sufficient for requirements. The quantity of eggs and the production of cocoons appear to be definitely larger than those of 1936 and the average. The yield was 117 lb. of cocoons per ounce, that is, practically equal to the yield of 1936, but above the average of 1931-35 (112 lb.).

In France, rearing conditions for silkworms were excellent up to the end of June. Temperature and moisture were favourable at the beginning of July but the mulberry leaves were rather too forward for the age of the silkworms at this period. The season was not too favourable subsequently owing to the very hot weather experienced in various regions towards the end of the rearing period. It is interesting to note that the number of rearers, which in recent years has declined rapidly and continuously, showed an increase on 1936. According to the approximate results of the silk enquiry published at the beginning of October by the Ministry of Agriculture, the yield this year was 112 lb per ounce of eggs placed in incubation against 114 lb. in 1936 and an average of 119 lb in the five years 1931 to 1935.

In Greece, rearings during the spring developed favourably, the rains of the end of May causing no appreciable damage to mulberries or to rearings. The quantity of incubations in Macedonia and Thrace was estimated to be larger than in 1936 and the total production of cocoons is expected to be appreciably larger than that of last year and the average. The yield in 1937 was 107 lb of cocoons per ounce of eggs placed in incubation against 104 lb in 1936 and a 1931-35 average of 83 lb.

Direct information on Spain is not available. As the main sericultural areas are not directly exposed to the damage caused by hostilities (the most important district is Levante comprising the provinces of Murcia, Alicante, and Valencia) and as weather was, on the whole, rather favourable, there is reason to believe that satisfactory results were secured in 1937. It is very unlikely that cocoon production will reach the level of past years, particularly as Spain has shown a marked declining tendency in sericulture for some time.

In Hungary, mulberries were late in budding, but, in general, with some exceptions, weather conditions were good. The quantity of eggs placed in incubation is thought to be smaller than in 1936, a result apparently due to a decrease in the number of rearers. The season was favourable but cocoon production is estimated to fall below last year's level.

No information is available on the results of the year in Romania and Czechoslovakia but, owing to the rapid decline in sericulture in these countries, they now contribute an almost negligible part of total world production.

As regards the Oriental countries which have not been considered above, it is known that in Syria and Lebanon conditions in spring were favourable for the growth of mulberries and for rearings, particularly in Latakia where they were excellent. The quantity of eggs placed in incubation in Lebanon and in Latakia, which are the only two countries of importance, was about equal to that of last year, but the production of cocoons was greater than that of 1936. Yields were better this year at 78 lb. per ounce of eggs, against 65 lb. in 1936 and an average of 77 lb.

Estimates of production in Iran for this year are lacking but it is known that measures have recently been taken in this country with a view to developing the silk industry according to modern methods As a result of this policy, the production of cocoons in 1936 was twice as large as that of 1935, and it may be presumed that cocoon production in 1937 was appreciably greater than that of the previous year; it is consequently hoped in interested quarters that in two or three years the country will be able to provide for its own requirements.

The most recent information on the colonies and protectorates of French Indo-China indicates that the silk season made a good beginning but concluded in poor conditions owing to the unfavourable weather of the summer. Plantations in Tonkin suffered from floods, and a substantial reduction in rearings seems likely to result. In Annam, the excessively high temperatures of June and July caused damage; in Cambodia rearings were suspended at the end of August when mulberries were almost submerged. On the whole, therefore, the sericultural season has given rather unsatisfactory results and the production of cocoons is believed to be poor.

Conditions were generally favourable in Turkey, both for mulberries and for rearing. In the Brusa, the main producing area of the country, the quantity of eggs placed in incubation was slightly above that of 1936 and yields are estimated to be very good with a total production of nearly 4.4 million lb.

In Brazil the prospects for the 1937-38 season, which has just begun, are good. It is interesting to note the important steps taken by the authorities in this country to develop sericulture, namely bonuses to the most successful rearers, free grants of land and distribution of young mulberry plants to cultivators who undertake to plant mulberries on a given area, etc.

Finally, as regards the silk-producing countries of Africa, which are all of modest importance (Egypt, Tripolitania, etc.), the season was normal and results vary from good to fairly good.

To sum up, the 1937 silk year in Europe has given mediocre results on the whole, for despite an increase in the incubations over the previous year, the production of cocoons was only equal to that of 1936. The European crop, to judge from the estimates for the four principal producing countries and from approximate estimates for the producing countries of minor importance, amounted in 1937 to 84.7 million lb. against 84.9 million lb. in 1936. Production of both these years, though slightly exceeding the 1931-35 average (81.1 million lb.) is considerably below the 1926-1930 average (134 million lb.).

In Asia also, the weather conditions were not at all times favourable for rearings, but, on the whole, the results of the year were fairly good. For all the Asiatic countries, excluding China and India, cocoon production for this year may be estimated at 755.3 million lb. against 754.2 millions lb. in 1936 (an increase of 0.1 per cent.) and 823 9 million lb. in 1931-35, an decrease of 8.3 per cent. The 1937 production is also 11 per cent. below the 1926-30 average.

The marked development of sericulture which has occurred in recent years in Brazil and in the U. S. S R. continued in all probability in 1937.

In the few African countries, where silkworm-rearing is practised on a very limited scale, the results of the year appear to be slightly above the average.

The total world production of cocoons, excluding that of China and India, is estimated this year at 890.0 million lb against 887 4 million lb in 1936 (an increase of 0 3 per cent) 940 7 million lb during the period 1931-1935 (a decrease of 5.4 per cent) and 1 013 5 million lb during the period 1926-1930 (a decrease of 12 2 per cent) A necessarily rough estimate based on this cocoon production indicates that the world production of raw silk in 1937 is about 84 million lb. excluding the production of China and India

Simultaneously with a stationary or decling production of raw silk, there has occurred a continuous increase in the world production of artificial fibres (rayon and short fibres) According to statistics from authoritative quarters, the production of rayon in 1936 was about 1,003 million lb and that of short fibres about 298 million lb giving a total of 1,301 million lb compared with 1 074 million lb produced in 1935 It is estimated that production has almost quadrupled in 10 years for it 1927 in was barely 310 million lb

It is interesting to note that, in 1936, Japan, the largest silk-producing country in the world, also became the largest producer of artificial textile fibres, the United States now having ceded first place The production of artificial fibres is making rapid progress in Germany, Italy and Great Britain but appears stationary or on the decrease in France and Spain.

II. — TRADE, PRICES AND STOCKS OF RAW SILK DURING THE COMMERCIAL YEAR 1936-37

The silk market began the year July 1936-June 1937 with a lower than average world production of raw silk and an upward tendency in the prices of raw materials. Transactions consequently began actively and continued so for much of August. In September there was a weak tendency with almost normal price variations but signs of recovery were noticeable in October with an increase in transactions and a rise in prices. This tendency was more marked in November. Speculation developed and prices rose on all markets under the influence of reduced supplies and of the currency depreciation which had taken place in various countries. The last month of 1936, however, showed a reaction, mainly the result of information of an American consumption during November which was less than expected. Prices during this month on the principal markets were variable and generally not maintained. 1937 brought nothing of great interest Except for the first half of January, when markets were very animated with prices occasionally reaching record levels, the first quarter passed quietly with variable prices and business quiet. During the second quarter these was a weak tendency with moderate falls The year closed with markets quiet but prices of raw silk were appreciably higher than those of the end of June 1936

United States. — Imports, consumption, stocks and prices in New York, of raw silk by commercial season

SEASON	Imports		Deliveries to mills		Stocks at the end of the period		Prices in New York - Crack, XX (78 %) 13/15, Spot	
	Total	From Japan	Total	Japanese silk	Total	Japanese silk	in dollars per lb	in gold francs per kilogr
	(lb)	%	(lb)	%	(lb)	%		
1934-35:								
July September	15,931,300	98	13 564 900	95	10 307 500	93	1,17	7 91
October December	15 718 800	98	17,159 300	97	8 867,000	94	1 30	8 85
January March	14 009 100	97	17 956 500	97	4 919 600	93	1,43	9 72
April June	15 772 100	98	15 041 300	98	5 650 400	94	1 40	9 55
Total and Average	*61 431,300*	*98*	*63,722,000*	*97*	—	—	*1 33*	*9 00*
1935-36:								
July September	17,173,400	96	17 622 000	96	5,201 800	92	1 72	11 62
October December	18 393,200	89	16 206,200	92	7,388,800	86	2 15	14 63
January March	14,227 600	92	14,396,000	92	7,220 400	86	1 86	12 51
April June	10 733,000	93	13,191,200	93	4,762,200	83	1 64	11 15
Total and Average	*60 527,200*	*93*	*61,415,400*	*94*	—	—	*1 84*	*12 48*
1936-37:								
July September	15 939,800	95	16,727,300	94	3 974,700	85	1,73	11,67
October December	18 825 100	92	16,826 600	91	5 973,200	89	1 92	13,01
January March	16 128,900	89	16 489 700	91	5,612 400	82	2,02	13 68
April June	15,525,600	92	15,011 200	91	6,126 800	86	1,90	12,84
Total and Average	*66 419 400*	*92*	*65 054 800*	*92*	—	—	*1,89*	*12 80*

An examination of the more important markets shows the following developments

The monthly imports of raw silk into the United States in the years 1936-37 averaged 5,534,900 lb compared with 5,043,900 lb. in 1935-36 and 5,119,300 lb in 1934-35, an increase of 9 7 per cent and 8 1 per cent. respectively. Imports were lowest in July, the first month of the year, and highest in November of the same year Average monthly deliveries to mills were 5,421,200 lb. against 5,118,000 lb in 1935-36 and 5,310,100 in 1934-35. The total movement of silk in the United States in 1936-37 was thus larger than in any of the three previous years, both imports from abroad and deliveries to mills being larger than those of the years 1933-34 to 1935-36. Imports, however, exceeded deliveries and there was thus an increase in stocks during the year from 4,762,200 lb at the end of June 1936 to 6,126,800 lb. at the end of June 1937, an increase of about 29 per cent. Prices on the American market in 1936-37 took an irregular course. In July and the first two decades of August 1936, they rose fairly rapidly but at the end of August they weakened and this tendency continued during the greater part of September. In October and November prices rose steadily. The market situation was satisfactory under the influence of greater economic activity and as a result of the tripartite monetary agreement. In the last days of September the market became slower, giving the impression of a change in trend. In December it was undecided but quiet. An appreciable recovery occurred in the middle of January but this phase soon came to an end and in February prices showed a not too well defined but continued tendency to fall whilst from May to June there was no appreciable change. Average prices in the April-June quarter of 1937 were about 16 per cent. above the corresponding prices in 1936.

The raw silk requirements of the American market are covered, as is known, almost entirely by Japan. In 1936-37, however, and in the preceding year, a stronger demand for Chinese silk was noticeable. It appears that the propaganda undertaken by the Governments of many silk producing provinces (Chekiang, Kiangsu) with the object of improving the quality of the

Japan. — Exports of raw silk and prices in Yokohama, by commercial season.

SEASON	Exports			Prices in Yokohama Quality D. grade 13/15, White (basis for Open Contracts)	
	To America	To other Countries 1)	Total	in yen per 100 kin	in gold francs per kilogr.
	(lb)	(lb)	(lb)		
1934-35:					
July-September	16,385,300	2,360,600	18,745,900	473.35	7.21
October-December	14,099,800	2,440,400	16,540,200	563.75	8 41
January-March	14,037,500	2,639,300	16,676,800	607,10	8.89
April June	13,902,400	3,081,100	16,983,500	606.25	8 91
Total and Average	*58,425,000*	*10,521,400*	*68,946,400*	*562.60*	*8.37*
1935-36:					
July-September	18,539,900	2,297,500	20,837,400	767.50	11.44
October-December	15,055,600	2,815,700	17,871,300	905,40	13 39
January-March	11,201,500	2,332,500	13,534,000	787.90	11.64
April-June	9,283,300	2,039,900	11,323,200	711.70	10 67
Total and Average	*54,080,300*	*9,485,600*	*63,565,900*	*793.12*	*11.79*
1936-37:					
July-September	17,165,400	2,231,000	19,396,400	749.60	11.29
October-December	19,194,700	2,772,900	21,967,600	843 35	12 28
January-March	10,717,900	2,172,300	12,890,200	895.85	13 03
April-June	13,077,900	1,701,000	14,778,900	836.70	12 36
Total and Average	*60,155,900*	*8,877,200*	*69,033,100*	*831.40*	*12.24*

1) For the most part to European countries: the remainder to Australia, India, Egypt, etc.

product and facilitating sales abroad, particularly in America, may have had something to do with this increase but, in any case, the annual exports of raw Chinese silk to the United States are very modest (about one-twentieth) as compared with Japanese exports.

As regards Japan, the average monthly exports of raw silk from Yokohama and Kobe in 1936-37 were 5,752,800 lb. against 5,297,200 lb. in 1935-36, an increase of 8.2 per cent. but they were slightly smaller (0.2 per cent.) than those of 1934-35 which were 5,745,500 lb. Exports were lowest during the months of January, February and June 1937, which averaged 4.4 million lb. Prices at Yokohama during the season 1936-37 showed a course more or less similar to that at New York and reached 900 yen per 100 kin, one of the highest levels of the year, in the second half of November. During the first half of the year 1937, except for some extraordinary activity during the first half of January (with quotations of 935 yen per 100 kin), due apparently to internal speculation, the Japanese market was changeable but only within narrow limits. The average prices of the April-June quarter of 1937 were 17 per cent. larger than those of the same quarter in 1936. The great activity of the Chinese market already noted in 1935-36 owing to the substantial exports from Shanghai was maintained fairly well in 1936-37. The total exports were only slightly smaller than those of 1935-36 but they appreciably exceeded those of the years

China. — Exports of raw silk and prices in Canton, by commercial season.

SEASON	Exports				Prices in Canton - N S Crack R. R 14 16 (c i f, delivery New York)	
	To America	To Europe	To other countries	Total	in dollars of U S per lb	in gold francs per kilogr.
	(lb)	(lb)	(lb)	(lb)		
1934-35:						
July-September	195,500	436,900	1,336,000	1,968,400	0.97	6.54
October-December	390,400	890,800	625,800	1,907,000	1.07	7.29
January March	260,400	373,700	239,500	873,600	1.21	8.26
April June	295,400	462,600	760,100	1,518,100	1.27	8.68
Total and Average	*1,141,700*	*2,164,000*	*2,961,400*	*6,267,100*	*1.13*	*7.69*
1935-36:						
July-September	1,526,300	1,303,300	827,100	3,656,700	1.33	9.01
October-December	1,549,000	1,369,700	905,600	3,824,300	1.42	9.68
January-March	347,700	345,100	310,000	1,002,800	1.25	8.57
April-June	226,500	503,400	499,700	1,229,600	1.20	8.12
Total and Average	*3,649,500*	*3,521,500*	*2,542,400*	*9,713,400*	*1.30*	*8.84*
1936-37:						
July-September	589,300	766,900	1,123,700	2,479,900	1.33	8.98
October-December	1,248,100	1,135,300	774,500	3,157,900	1.46	9.89
January-March	812,900	540,400	649,800	2,003,100	1.60	10.77
April June	594,000	452,800	648,200	1,695,000	1.43	9.67
Total and Average	*3,244,300*	*2,895,400*	*3,196,200*	*9,335,900*	*1.45*	*9.83*

1933-34 and 1934-35. The decrease from the level of 1935-36 was apparently to be attributed to the more lively demand by the national silk industry. Exports from Shanghai, which in recent years have accounted for three-quarters of the total exports of China, were somewhat smaller in 1936-37 than in the preceding year, while exports from Canton were larger. It is of interest to note that in 1934-35 the exports of silk from China to Europe were larger than those to America, and in 1935-36 they were about equal, while in 1936-1937 the situation was reversed. In all, the average monthly exports from Shanghai and Canton in 1936-37 were 778,000 lb. against 809,400 lb. in 1935-1936 and 522,300 lb. in 1934-35.

To secure uniformity, the Chinese commercial silk year has been made to accord with that of other markets. Actually the Season in Shanghai begins in June and that in Canton in May.

Prices at Shanghai showed little difference from those of the Japanese and American markets with rising tendencies in October-November 1936 and in January 1937 after the announcement of an increase in sales in America and Europe, and a variable course with slight oscillations during the rest of the year, which closed with slightly better prices, due more to internal speculation based upon prospects of a rather light spring outturn than to the actual situation of the world market.

With regard to Italy which is both an importing and an exporting country, the following table gives the figures of imports and exports of raw silk without taking account of the trade in waste products. It is well to point out that

Italy. — Imports of raw silk by commercial season.

SEASON	Imports			
	From Japan	From China	From other countries	Total
	(lb.)	(lb.)	(lb.)	(lb.)
1934-35:				
July-September	0	22,900	13 900	36,800
October-December	22,000	28,900	19,000	69.900
January-March	13,700	14,600	9,700	58,000
April-June	39,200	18,100	8 400	65,700
Total	*94,900*	*84,500*	*51,000*	*230.400*
1935-36:				
July-September	65,900	27,100	32 000	125,000
October-December	93 500	25,800	24 000	143,300
January-March	40,100	2,000	2,900	45,000
April-June	41,000	0	400	41 400
Total	*240.500*	*54,900*	*59 300*	*354,700*
1936-37:				
July-September	36,400	1,800	2,200	40 400
October-December	26,700	14,800	1,800	43,300
January-March	65.300	3.500	18,500	87.300
April-June	91.900	6,600	56,000	154,500
Total	*220,300*	*26,700*	*78,500*	*325,500*

two governmental measures put into force in 1935 have exercised a definite influence in the Italian silk market. The first, issued in March, prohibited the import of silk except under licence from the Ministry of Finance. Imports consequently fell to almost 230,400 lb. in 1934-35 as compared with 1,170,000 lb. in 1933-34 The second measure, issued in October, required holders of raw silk to declare their stocks to the competent authorities and to sell the product abroad This provision led to an increase in exports of Italian silk which, however, owing to the decrease in production have been much smaller in the last three years than the average exports of former years (the average of the years 1926-27 to 1929-30 was 12,786,900 lb).

Italy. — Exports of raw silk and prices in Milan, by commercial season.

SEASON	Exports					Prices in Milan, Classica Yellow 13/15 (prices for exports)	
	To Brazil	To United States	To Europe	To other countries	Total	in lire per kg	in gold francs per kilogr
	(lb)	(lb)	(lb)	(lb)	(lb)		
1534-35							
July September	115 300	39,900	809 800	163 400	1 128,400	27,74	7 29
October December	156 700	60 800	929 300	175 900	1 322 700	33 77	8 88
January March	129 200	49 800	983 700	63 100	1,225 800	35 07	9 17
April June	164 500	136 700	873 900	132 700	1 307 800	42 66	10 85
Total and Average	*565 700*	*287,200*	*3 596,700*	*535 100*	*4 984 700*	*34 81*	*9 05*
1925-36.							
July September	173 500	10 000	492 600	78 500	754 600	65 92	16 56
October December	222 900	465 200	616 200	35,700	1,340 000	73 01	18 26
January March	115 700	152 100	445 600	700	714 100	67 49	16 43
April June	138 200	785 300	629 000	7 700	1 560,200	64 37	15 61
Total and Average	*650 300*	*1 412 600*	*2,183 400*	*122 600*	*4 368,900*	*67 70*	*16 71*
1936-37.							
July September	172,000	336 400	672 900	77,200	1 258 500	75 43	18 19
October December	61 700	1,011 000	999 100	74 300	2 146 100	77 50	12 85
January March	35 300	616 600	875 500	23 600	1 551 000	95 29	15 34
April June	11 900	452 800	716 900	13 000	1,194,600	111 08	17 89
Total and Average	*280 900*	*2 416 800*	*3 264 400*	*188,100*	*6,150,200*	*89 82*	*16 07*

It is to be noted that recently imports have consisted largely of quantities imported temporarily. Purchases of Japanese silk showed considerable development in the first half of 1937, whilst other imports, including Chinese, remained small The increase in the total for the other countries during the period April-June 1937 was due mainly to exports from France and Switzerland. The total of Italian imports of raw silk in 1936-37 was slightly smaller than those of 1935-36 but they were nearly 40 per cent. larger than those of 1934-35.

Exports showed two important features in 1936-37, namely, a considerable and progressive decline in exports to Brazil, a natural consequence of the expansion of the sericulture industry of the country and an appreciable increase in exports towards the United States in October-December 1936 and January-March 1937 as a result of two large collective contracts concluded during the periods indicated. Raw silk prices in Italy showed a rather different course in 1936-37 from that of other markets. The first quarter July-September began with rather high prices, which, however, declined slightly towards the end of the period. During October-December, export prices in lire, owing to the new exhangevalue, showed an appreciable increase. In the first months of 1937 the upward tendancy continued and the sericultural year closed on a note of expectancy. The average June price showed a weakening compared with the previous months.

It may be mentioned that only a slight proportion of the cocoon production is put on the world market because the most important producing countries themselves convert it to raw silk and this is the commodity which forms the object of the important international transactions described above.

At the end of 1936-37, visible world stocks of raw silk were estimated at about 15,430,000 lb against 17,640,000 lb on 30 June 1936 and 22,100,000 lb at the same date in 1935 Stocks held by the Japanese Government were on 30 June 1937, 6.4 million lb compared with 7 9 million lb. on 30 June 1936 and 10 6 million lb on 30 June 1935 World stocks thus underwent a further reduction in 1936-37 and this may have an effect on prices in 1937-38, especially as the world raw silk production in 1937 was not large and certainly below average

M. Costa

TRADE

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
	Wheat. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	495	387	0	0	669	996	0	0	4,625	0
Hungary	299	2,054	0	0	832	3,859	0	0	13,121	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland-Dantzig	0	238	0	0	0	705	0	0	1,131	0
Rumania	...	...	...	...	.	...	...	...	22,528	1
Yogoslavia	819	2,008	0	0	1 748	3,147	0	0	10,781	0
U. S. S. R.	..	...	...	...	1) 1,399	1) 8	1) 0	1) 0	758	0
Canada	3,542	12,432	46	1	7,469	25,127	78	3	104,917	88
Argentina	1,855	2,318	—	—	4,113	4,567	—	—	93,598	—
Chile	...	...	..	...	.	...	...	...	2) 0	2) 0
Uruguay	.	...	...	...	.	..	...	...	1,874	27
India: by sea 4)	112	841	3	3	1,246	1 041	13	3	9,992	8
» : by land 4)	...	...	...	...	.	...	..	..	2) 519	2) 172
Iraq	...	...	...	...	1) 145	1) 41	1) 0	1) 0	2,982	0
Iran	...	...	...	...	..	.	..	.	2) 538	2) 0
Manchukuo	...	...	—	—	1) 4	1) 48	—	—	410	—
Syria & Leb.: Fr m t.	2	94	3	0	2	109	29	0	827	136
Turkey	...	...	—	—	1) 345	1) 10	—	—	2,814	—
Algeria	357	522	31	15	778	955	31	15	3,566	626
Egypt	...	...	...	..	1) 2	1) 0	1) 0	1) 0	366	0
French Morocco	...	...	...	...	...	...	...	.	2) 404	2) 1,325
Tunis	246	4	6	65	540	13	30	110	205	692
Australia	829	3,634	0	0	3,038	5,179	0	0	44,177	0
Importing Countries:										
Germany	0	1	1,681	36	0	42	5,368	180	42	18,610
Austria	1	1	209	282	2	2	314	696	10	5,293
Belgo-Luxemb. E. U.	269	110	2,627	3,014	342	128	4,458	5,375	2,609	26,247
Denmark	51	30	250	389	59	31	519	655	406	4,027
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	10	28	20	0	84	153
Finland	0	0	77	121	0	0	172	314	0	1,530
France	79	103	889	577	236	700	1,435	1 295	1,132	8,599
Greece	0	0	687	925	0	0	1,535	1,848	0	12,887
Irish Free State	0	0	616	298	0	0	1,242	926	0	7,320
Italy	3	7	455	774	3	7	1,420	1,147	70	40,812
Latvia	0	0	0	0	0	0	176	0	0	596
Norway	0	0	250	121	0	0	503	359	0	3,847
Netherlands	11	4	1,089	786	11	4	2 217	1 523	55	11,398
Portugal	0	0	0	0	0	0	1	13	0	22
United Kingdom	195	34	7,386	8,501	313	258	17,005	16,882	1,810	110,684
Sweden	17	185	95	112	17	628	202	201	795	1,148
Switzerland	0	1	782	931	1	1	1,264	1 663	5	10,636
Czechoslovakia	6	23	12	2	362	24	37	2	5,211	192
United States	1,607	292	272	3,456	4,879	425	793	7,902	3,172	26,086
Brazil	—	—	...	...	—	—	.		—	2) 20,167
Colombia	—	—	...	...	—	—	.		—	2) 312
Peru	...	...	...	.	.	.	..	..	0	2,555
Burma 5)	0	—	19	—	0	—	33	—	0	32
Ceylon	—	—	9	9	—	—	19	22	—	118
China	...	...	..	...		.	.	..	775	1,060
Chosen	...	..	..	...	1) 0	1) 0	1) 0	1) 0	2	50
Taiwan	—	—	...	..	—	—	...	.	—	2) 7
Indo-China	...	...	...	.	...	.	..	...	0	2
Japan	—	—	.	...	—	—	..	...	—	3) 3,942
British Malaya	...	...	.	..	..	...	...	..	2	7
Palestine. Br. m. t.	...	...	..	..	1) 1	1) 0	1) 1	1) 9	6	1,091
Union of South Afr.	...	...	..	..	1) 2	1) 0	1) 1	1) 1	586	13
New Zealand	...	...	...	...	..	..	...	...	0	273
Totals	**10,795**	**25,323**	**17,494**	**20,418**	**28,568**	**48,083**	**38,916**	**41,144**	**336,905**	**322,788**

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1) Up to 31 August. — 2) Up to 30 June. — 3) Up to 31 May. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 1937.

Wheat flour. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:										
Germany	0	1	59	0	1	34	268	1	134	478
Bulgaria	9	19	0	0	14	19	0	0	86	0
Spain	—	—	—	—	—	—	—	—	—	—
France	121	198	82	90	287	390	151	202	2,845	847
Hungary	85	107	0	0	144	196	0	0	1,352	0
Italy	164	396	13	8	345	865	24	14	4,417	38
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland - Dantzig	0	177	0	0	0	319	0	0	1,449	0
Romania	...	...	...	...	...	...	...	...	16	0
Yugoslavia	18	13	0	0	34	24	0	0	123	0
U. S. S. R.	...	...	...	...	1) 156	1) 118	1) 0	1) 15	1,464	45
Canada	601	741	13	11	1,167	1,501	22	23	8,870	112
United States	848	804	0	7	1,589	1,403	1	13	7,628	71
Argentina	131	186	—	—	259	308	—	—	2,148	—
Chile	...	...	...	...	...	...	...	...	2) 0	2) 93
Uruguay	...	...	...	...	...	...	...	...	121	0
Chosen	...	...	...	...	1) 2	1) 4	1) 0	1) 0	52	0
India, by sea 4)	120	47	0	0	230	75	0	6	855	21
Iraq	...	...	...	...	1) 11	1) 8	1) 0	1) 0	90	0
Iran	...	...	...	...	...	...	...	...	2) 0	2) 0
Japan	...	...	...	...	...	...	...	...	3) 1,663	3) 414
Algeria	41	31	5	3	83	104	9	7	554	80
French Morocco	...	...	...	...	...	...	...	...	2) 10	2) 0
Tunis	24	54	4	21	47	78	9	34	284	193
Australia	839	651	0	0	1,841	1,635	0	0	11,063	0
Importing Countries										
Austria	1	1	27	44	5	3	41	87	49	512
Belgo Luxemb. E. U.	4	20	7	17	6	24	8	35	78	103
Denmark	4	3	15	8	6	6	27	18	25	161
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	34	34	0	0	75	89	0	479
Greece	0	0	1	1	0	0	2	1	0	15
Irish Free State	0	0	17	13	0	0	25	21	0	140
Norway	0	0	22	24	0	0	25	78	1	902
Netherlands	1	7	116	125	63	7	208	263	433	1,422
Portugal	0	0	0	4	0	0	2	7	0	45
United Kingdom	160	177	604	653	249	392	1,361	1,411	2,042	9,494
Sweden	2	2	0	0	4	4	0	0	26	3
Czechoslovakia	28	1	0	1	195	1	0	2	348	9
Haiti	—	—	...	...	—	—	...	...	—	2) 225
Brazil	—	—	...	...	—	—	...	...	—	2) 918
Colombia	—	—	...	...	—	—	...	...	—	2) 11
Peru	...	...	...	...	...	...	...	...	0	31
Burma 5)	0	—	53	—	0	—	117	—	1	209
Ceylon	—	—	24	26	—	—	54	51	—	353
China	...	...	...	...	...	...	...	...	221	537
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 71	1) 72	—	991
Outer Provinces	—	—	...	...	—	—	1) 45	1) 45	—	602
Indo-China	...	...	...	...	...	...	...	...	0	422
British Malaya	...	...	...	...	...	...	...	...	142	1,494
Manchukuo	...	...	...	...	1) 43	1) 0	1) 263	1) 310	11	2,371
Palestine Br. m. t.	...	...	...	...	1) 0	1) 0	1) 35	1) 37	0	729
Syria & Leb.: Fr. m. t.	9	22	1	6	14	42	7	7	189	89
Egypt	...	...	...	...	1) 2	1) 0	1) 2	1) 3	30	54
Union of South Africa	...	...	...	...	1) 2	1) 0	1) 0	1) 1	5	10
New Zealand	...	...	...	...	...	...	...	...	1	44
Totals	**3,210**	**3,658**	**1,097**	**1,096**	**6,799**	**7,560**	**2,852**	**2,853**	**48,826**	**24,[illegible]**

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1) Up to 31 August. — 2) Up to 30 June. — 3) Up to 31 May. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 1937.

Total Wheat and Flour †). — Thousand centals (1 centals = 100 lb.).

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX.*)	NET IM.**)
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Germany	—	—	1,760	35	—	—	5,725	95	—	19,027
Austria	—	—	243	339	—	—	361	806	—	5,754
Belgo-Luxem. E. U.	—	—	2,362	2,899	—	—	4,118	5,261	—	23,674
Bulgaria	506	413	—	—	688	1,022	—	—	4,740	—
Denmark	—	—	214	365	—	—	489	640	—	3,802
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	—	—	—	28	10	—	—	97
Finland	—	—	123	166	—	—	273	433	—	2,169
France	—	—	759	330	—	—	1,017	345	—	4,802
Greece	—	—	688	926	—	—	1,537	1,849	—	12,906
Hungary	413	2,198	—	—	1,025	4,121	—	—	14,924	—
Irish Free State	—	—	639	315	—	—	1,275	954	—	7,509
Italy	—	—	252	248	—	—	989	5	—	34,903
Latvia	0	—	—	0	—	—	176	0	—	596
Lithuania	0	0	—	—	0	0	—	—	0	—
Norway	—	—	279	153	—	—	536	463	—	5,047
Netherlands	—	—	1,231	939	—	—	2,399	1,860	—	12,661
Poland-Dantzig	0	474	—	—	0	1,130	—	—	3,062	—
Portugal	—	—	0	5	—	—	4	23	—	81
Romania	...	...	...	...	...	...	...	...	22,549	—
United Kingdom	—	—	7,782	9,103	—	—	18,173	17,984	—	118,805
Sweden	—	75	75	—	—	431	180	—	—	323
Switzerland 4)	—	—	782	929	—	—	1,263	1,662	—	10,632
Czechoslovakia	31	21	—	—	585	22	—	—	5,470	—
Yugoslavia	843	2,025	—	—	1,794	3,180	—	—	10,950	—
Totals Europe	*1,793*	*5,206*	*17 189*	*16,752*	*4,092*	*9,934*	*38,525*	*32,380*	*61,695*	*262,788*
U. S. S. R.	...	...	—	—	1) 1,607	1) 146	—	—	2,650	—
Canada	4,280	13,406	—	—	8,918	27,096	—	—	116,507	—
United States	2,466	—	—	2,101	6,204	—	—	5,625	—	12,839
Haiti	...	...	...	...	...	...	...	...	—	2) 299
Argentina	2,029	2,566	—	—	4,458	4,977	—	—	96,325	—
Brazil	...	...	...	...	...	...	...	...	—	2) 21,391
Chile	...	...	...	...	...	...	...	...	—	2) 124
Colombia	...	...	...	...	...	...	...	...	—	2) 326
Peru	...	...	...	...	...	...	...	...	—	2,596
Uruguay	...	...	...	...	...	...	...	...	2,008	—
Burma 5)	—	—	89	—	—	—	188	—	—	278
Ceylon	—	—	41	43	—	—	91	90	—	588
China	...	...	...	...	...	...	...	...	—	707
Chosen	...	...	...	...	1) 2	1) 6	—	—	21	—
Taiwan	...	...	...	...	...	...	...	...	—	3) 7
India: by sea 6)	269	902	—	—	1,538	1,132	—	—	11,096	—
» : by land 6)	...	...	...	...	...	...	...	...	2) 347	—
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 95	1) 95	—	1,321
Outer Provinces	—	—	...	...	—	—	1) 60	1) 60	—	867
Indo-China	...	...	...	...	...	...	...	...	—	563
Iraq	...	...	—	—	1) 160	1) 53	—	—	3,101	—
Iran	...	...	...	...	...	...	...	...	2) 538	—
Japan	...	...	...	...	...	...	...	...	—	3) 2,278
British Malaya	...	...	...	...	...	...	...	...	—	1,808
Manchukuo	—	—	...	...	—	—	1) 366	1) 1,117	—	2,738
Palestine: Br m t	—	—	...	...	—	—	1) 47	1) 58	—	2,056
Syria & Leb.: Fr. m t.	9	116	—	—	—	116	18	—	824	—
Turkey	...	...	—	—	1) 345	1) 10	—	—	2,814	—
Algeria	374	545	—	—	846	1,069	—	—	3,572	—
Egypt	...	...	...	...	1) 1	—	—	1) 4	334	—
French Morocco	...	...	...	...	...	...	...	...	—	2) 908
Tunis	267	—	—	17	561	—	—	39	—	366
Union of South. Afr.	...	...	—	—	1) 3	1) 2	—	—	565	—
Australia	1,948	4,502	—	—	5,491	7,359	—	—	58,928	—
New Zealand	...	...	...	...	...	...	...	...	—	330
Totals	**13,435**	**27,243**	**17,319**	**18,913**	**34,226**	**51,900**	**39,390**	**39,468**	**361,325**	**315,178**

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*) Excess of exports over imports. — **) Excess of imports over exports

†) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333.333 centals of grain.

1) Up to 31 August. — 2) Up to 30 June. — 3) Up to 31 May. — 4) Wheat only. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:	**Rye.** — Thousand centals (1 cental = 100 lb.).									
Germany	0	0	86	9	0	1	405	15	1	3,232
Bulgaria	0	6	0	0	0	6	0	0	254	0
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	0	0	16	0	172	405
Hungary	222	320	0	0	379	481	0	0	2,816	0
Latvia	0	267	0	0	0	496	0	0	623	205
Lithuania	0	27	0	0	0	36	0	0	47	0
Poland-Dantzig	2	648	0	0	45	1,414	0	0	4,790	0
Romania	...	...	...	...	...	...	...	...	2,684	0
Sweden	1	0	0	3	1	4	0	9	4	166
Yugoslavia	29	8	0	0	48	1	0	0	92	0
U. S. S. R.	...	...	...	...	1) 293	1) 359	1) 0	1) 0	1,552	0
Canada	41	298	2	1	153	600	4	1	2,034	3
Argentina	5	379	—	—	29	521	—	—	3,394	—
Algeria	1	5	0	0	8	16	0	0	26	0
Importing Countries.										
Austria	1	1	478	376	3	2	772	657	17	3,852
Belgo-Luxemb. E.U.	0	0	184	211	0	6	204	540	39	1,126
Denmark	1	0	313	495	1	0	501	906	0	3,809
Finland	0	0	19	16	0	0	54	38	1	1,418
France	0	0	2	9	0	0	2	15	0	27
Greece	0	0	0	0	0	0	0	0	0	1
Italy	0	0	0	15	0	0	0	32	0	141
Norway	0	0	150	337	0	0	195	491	0	2,933
Netherlands	272	160	67	82	334	175	148	259	2,028	1,237
United Kingdom	0	0	0	19	0	0	6	27	1	140
Switzerland	0	0	7	3	0	0	7	19	0	604
Czechoslovakia	1	0	66	2	1	1	67	3	3	15
United States	403	0	0	343	981	0	0	976	303	2,045
Palestine: Br. m. t.	—	—	...	...	—	—	1) 13	1) 5	—	120
French Morocco	...	...	...	..	...	...	...	...	2) 0	2) 0
Totals	**977**	**2,119**	**1,374**	**1,921**	**2,276**	**4,137**	**2,394**	**3,993**	**20,881**	**21,479**

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1) Up to 31 August. — 2) Up to 30 June.

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
	Barley. — Thousand centals (1 centals = 100 lb).									
Exporting Countries										
Bulgaria	38	45	0	0	189	63	0	0	606	0
Denmark	440	199	1	0	538	207	4	2	1,695	1,426
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	29	66	0	0	88	73	0	0	638	0
Latvia	0	0	0	0	0	0	2	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	18
Poland - Dantzig	184	1,104	0	0	203	1 647	0	0	6,342	0
Romania	...	...	...	...	...	...	...	...	13,765	0
Sweden	0	0	0	0	0	0	0	0	2	12
Czechoslovakia	0	210	0	0	0	272	0	0	1,163	2
Yugoslavia	29	2	0	0	52	2	0	0	192	1
U. S S R.	...	...	...	...	1) 1,360	1) 186	1) 0	1) 0	480	0
Canada	776	1,283	0	0	1,148	2 223	0	0	8,427	0
United States	1,416	482	158	792	2,423	1,255	323	1,482	2,332	8,145
Argentina	35	310	—	—	121	490	—	—	7,032	—
Chile	...	...	—	—	...	...	—	—	2) 1,491	—
India by sea 4)	77	6	6	4	139	6	17	5	637	37
Iran	...	...	...	...	1) 614	1) 477	1) 0	1) 0	6,969	0
Iraq	...	...	...	...	...	...	...	...	2) 484	2) 0
Manchukuo	...	...	—	—	1) 0	1) 7	—	—	24	—
Syria & Leb : Fr m t.	6	305	4	0	11	436	7	0	1,177	26
Turkey	...	...	—	—	1) 207	1) 6	—	—	1,472	—
Algeria	22	194	1	106	71	502	2	281	1,395	595
Egypt	...	...	...	...	1) 28	1) 7	1) 0	1) 1	622	3
French Morocco	...	...	...	...	...	...	...	...	2) 4,251	2) 0
Union of South Afr	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
Australia	30	11	0	0	42	92	0	0	1,254	0
Importing Countries										
Germany	0	0	333	6	0	0	640	32	0	3,207
Austria	0	0	52	138	0	0	108	235	2	927
Belgo Luxemb E U.	13	22	1 360	1,445	40	73	1,896	2,035	759	10,567
Estonia	0	0	0	0	0	0	0	3	0	56
Finland	0	0	0	0	0	0	0	0	0	34
France	1	0	82	964	1	0	199	1,623	6	5,801
Greece	0	0	0	1	0	0	0	12	0	178
Irish Free State	0	0	0	0	0	0	121	0	1	545
Italy	2	0	28	44	2	0	45	163	0	745
Norway	0	0	51	82	0	0	61	121	0	618
Netherlands	173	122	489	259	205	132	754	700	468	4,641
United Kingdom	0	0	2,644	2,816	1	7	4,446	4,420	113	19,926
Switzerland	0	0	208	141	0	0	310	222	0	2,983
Burma 5)	—	—	0	—	—	—	1	—	—	2
Ceylon	—	—	0	0	—	—	0	2	—	11
Chosen	...	...	...	...	1) 11	1) 0	1) 0	1) 0	13	13
Indo-China	...	...	...	...	...	...	...	...	0	1
Japan	—	—	...	...	—	—	...	...	—	3) 299
Palestine : Br m t.	...	...	...	...	1) 35	1) 0	1) 3	1) 44	109	639
Tunis	149	0	2	199	361	0	4	426	206	842
New Zealand	...	...	...	...	...	...	...	...	0	164
Totals	**3,420**	**4,361**	**5,419**	**6,997**	**7,890**	**8,163**	**8,943**	**11,809**	**64,127**	**62,464**

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1) Up to 31 August — 2) Up to 30 June — 3) Up to 31 May. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 5) From 1st April 1937.

Oats. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	September — Exports — 1937	September — Exports — 1936	September — Imports — 1937	September — Imports — 1936	Two months (August 1-September 30) — Exports — 1937	Two months — Exports — 1936	Two months — Imports — 1937	Two months — Imports — 1936	Twelve months (August 1-July 31) — Exports — 1936-37	Twelve months — Imports — 1936-37
Exporting Countries.										
Bulgaria	0	2	0	0	0	2	0	0	73	0
Hungary	0	47	0	0	0	61	0	0	169	0
Lithuania	0	0	0	0	0	0	0	0	0	47
Poland-Dantzig	0	189	0	0	0	302	0	0	1,476	0
Romania	...	...	...	...	...	.	.	...	670	0
Czechoslovakia	6	15	0	0	44	44	0	0	919	0
Yugoslavia	24	0	0	0	45	0	0	0	81	0
U. S. S. R.	...	...	...	...	1) 1	1) 3	1) 0	1) 0	139	5
Canada	110	372	207	0	214	500	415	0	2,285	3
United States	280	1	0	4	946	3	0	4	29	50
Argentina	267	355	—	—	378	423	—	—	8,436	—
Chile	...	...	...	..		...	...	...	2) 1,481	2) 0
Chosen	...	.	...	...	1) 0	1) 0	1) 0	1) 0	44	1
India (by sea 4)	2	0	—	—	5	1	—	—	9	—
French Morocco	...	...	. .	...		.	.	..	2) 179	2) 0
Tunis	36	1	0	0	105	2	0	0	55	7
Union of South Afr.	..	...	..	..	1) 5	1) 1	1) 0	1) 0	90	0
Australia	6	4		2	10	10	1	3	121	13
New Zealand	...	..	...	.	.	..	.	. .	2	18
Importing Countries.										
Germany	0	0	25	6	0	0	130	6	1	1,118
Austria	0	0	50	54	0	0	100	129	1	848
Belgo-Luxemb. E. U.	0	0	44	30	0	0	111	46	4	1,011
Denmark	41	0	34	0	47	0	42	3	189	1,480
Estonia	0	0	0	0	0	0	0	0	0	129
Finland	0	0	26	11	0	0	44	32	0	125
France	0	0	115	198	1	1	157	312	6	2,393
Greece	0	0	0	2	0	0	0	4	0	93
Irish Free State	0	0	0	0	0	0	0	0	0	0
Italy	0	0	13	88	0	0	53	143	1	589
Latvia	0	0	0	0	0	0	0	0	0	11
Norway	0	0	0	0	0	0	0	0	1	132
Netherlands	12	19	112	21	22	19	206	64	1,138	709
United Kingdom	2	1	91	117	3	4	178	449	37	2,085
Sweden	0	0	45	8	0	0	97	22	55	634
Switzerland	0	0	283	324	0	0	569	583	0	4,562
Uruguay	...	...	. .	...	..	.	...	...	0	10
Ceylon	—	—	1	0	—	—	3	2	—	14
Indo-China	. .	...	...	..	...	. .	..	..	0	0
Japan	—	—	...	...	—	—	.	. .	—	3) 51
Syria and Lebanon: Fr. m. t.	5	0	0	0	7	0	0	0	5	1
Algeria	0	215	60	10	1	387	147	18	811	41
Egypt	—	—	...	...	—	—	1) 0	1) 0	—	1
Totals	**791**	**1,221**	**1,106**	**873**	**1,384**	**1,763**	**2,253**	**1,820**	**18,507**	**16,181**

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1) Up to 31 August — 2) Up to 30 June — 3) Up to 31 May. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	SEPTEMBER				ELEVEN MONTHS (Nov 1 Sept 30)				TWELVE MONTHS (Nov 1-Oct 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries										
Bulgaria	11	123	0	0	2,474	1,822	0	0	1,896	0
Hungary	164	0	0	123	2,440	32	10	7,228	40	7 305
Romania	...	...	...	...	2) 15,294	2) 15,914	2) 0	2) 0	18,831	0
Yugoslavia	1,159	104	0	0	12,349	1,374	2	0	1,445	0
U. S. S. R.	...	...	..	...	1) 0	1) 12	1) 1	1) 0	12	0
Haiti	.	...	—	—	2) 2	2) 3	—	—	3	—
Santo Domingo	..	...	—	—	1) 277	1) 188	—	—	307	—
Argentina	19,215	25,149	—	—	202,112	151,361	—	—	172,143	—
Brazil	...	...	—	—	3) 35	3) 71	—	—	113	—
Chile	...	...	...	...	3) 0	3) 0	3) 0	3) 0	0	0
China	...	...	—	—	2) 292	2) 100	—	—	189	—
India, by sea 4)	0	0	—	—	2	2	—	—	2	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 3,546	1) 2,305	—	—	2,485	—
Outer Provinces	...	...	—	—	1) 1,463	1) 628	—	—	765	—
Indo-China	...	...	—	—	1) 7,282	1) 7,569	—	—	10,542	—
Iraq	...	...	—	—	1) 6	1) 5	—	—	6	—
Manchukuo	...	..	—	—	1) 2,239	1) 1,571	—	—	1,719	—
Syria and Lebanon: Fr m t.	0	0	0	0	4	78	1	2	78	2
Turkey	...	..	.		1) 4	1) 0	1) 0	1) 120	0	133
Egypt	...	...	.		1) 52	1) 1	1) 0	1) 9	2	9
Madagascar	.	...	...	...	1) 518	1) 328	1) 0	1) 0	356	—
French Morocco	..	...	..	...	3) 390	3) 572	3) 0	3) 0	1,391	0
Union of South Afr	..	..	..	.	1) 5,252	1) 1,446	1) 1	1) 4	1,446	5
Importing Countries										
Germany	0	0	5,396	60	0	0	26,848	4 121	0	4,174
Austria	0	0	481	497	1	0	6 878	6 664	0	7,024
Belgo-Luxemburg Econ Union	6	27	1,349	1,321	422	475	19,007	17 457	507	19,404
Denmark	0	0	1,019	356	0	0	14,085	3,686	0	4,521
Spain	—	—	—	—	—	—	—	—		
Estonia	0	0	0	0	0	0	252	0	0	0
Finland	0	0	146	150	0	0	1,442	1,966	0	2,031
France	0	0	1,683	1,394	14	3	14,081	13 047	3	15,328
Greece	0	0	34	14	0	0	1,107	1 487	0	1,519
Irish Free State	0	0	522	187	0	0	6,325	4,195	0	4,806
Italy	0	0	339	202	0	0	2 781	3,948	0	4 001
Latvia	0	0	0	0	0	0	118	0	0	0
Norway	0	0	319	227	0	0	3 068	2,498	0	2,759
Netherlands	1	0	930	1,422	2	2	18 896	18,094	2	19,688
Poland-Danzig	0	0	6	0	0	0	174	0	0	0
Portugal	0	0	22	27	0	2	413	348	2	388
United Kingdom	254	233	6,140	6 680	2,398	1,366	74,264	70,313	1,479	79,085
Sweden	0	0	166	74	0	0	3,838	1,301	0	1,422
Switzerland	0	0	172	90	0	0	2,420	1,567	0	1,742
Czechoslovakia	0	0	102	241	18	0	1,357	2,294	0	2,345
Canada	0	0	1,571	232	218	51	11,792	2,463	62	4,723
United States	1	2	3,210	2,320	63	283	53,492	9,183	295	13,732
Peru	...	.	..	.	2) 0	2) 0	2) 3	2) 33	0	37
Chosen	..	..	...	...	1) 19	1) 1	1) 257	1) 440	3	599
Japan	—	—	...	..	—	—	4) 4,410	4) 3,708	—	6,456
Palestine Brit m t	...	..		...	1) 49	1) 36	1) 337	1) 110	40	154
Algeria	0	8	3	21	65	20	62	54	30	94
Tunis	0	0	11	29	0	5	220	63	5	142
Australia	0	0	0	0	0	0	4	21	1	21
New Zealand	..	...		..	2) 0	2) 0	2) 140	2) 53	0	57
Totals	**20,811**	**25,646**	**23,621**	**15,667**	**259,302**	**187,626**	**268,086**	**176,477**	**216,200**	**253,706**

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1) Up to 31 August. — 2) Up to 31 July — 3) Up to 30 June. — 4) Up to 31 May. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Rice. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	September				Nine months (January 1-September 30)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	137	145	4	1	2,370	1,905	14	21	3,147	28
United States	325	1	155	123	1,141	111	1,643	753	235	1,151
Brazil	...	...	—	—	3) 314	3) 675	—	—	1,176	—
Burma 5)	6) 5,064	—	3	—	7) 38,417	—	17	—	—	—
Chosen	...	...	...	...	1) 45	1) 57	1) 1	1) 2	153	3
Taiwan	. .	...	...	..	3) 1	3) 0	3) 0	3) 0	1	0
India by sea 6)	404	1,728	9) 1,722	130	14,590	23,746	10) 16,436	3,101	29,931	3,236
» by land 6)	..	...	...	...	3) 320	3) 288	3) 1,137	3) 936	513	1,385
Indo-China	...	...	...	...	1) 22,177	1) 26,654	2) 16	2) 30	37,375	69
Iran	...	...	...	...	1) 6	1) 6	1) 0	1) 0	13	1
Iraq	...	...	...	...	3) 773	3) 649	3) 0	3) 0	1,251	0
Siam	1,327	3,416	—	—	15,822	27,427	—	—	35,249	—
Egypt	...	...	...	..	1) 2,593	1) 1,678	1) 2	1) 1	3,070	2
Importing Countries										
Germany	83	55	700	354	422	400	3,421	2,979	561	3,805
Austria	0	0	54	52	0	0	519	429	0	604
Belgo Luxemb E U.	34	21	122	122	461	109	1,360	752	220	1,216
Denmark	0	0	2	0	0	0	116	177	0	182
Estonia	—	—	3	2	—	—	18	15	—	22
Finland	—	—	32	29	—	—	254	209	—	313
France	22	33	956	1,826	619	255	12,973	12,672	376	18,870
Greece	0	0	55	40	0	0	541	458	0	665
Hungary	0	0	20	22	0	0	290	272	0	349
Irish Free State	0	0	3	10	0	0	54	63	0	82
Latvia	0	0	2	1	0	0	17	10	0	17
Lithuania	0	0	0	2	0	0	7	7	0	9
Norway	0	0	11	6	0	0	106	85	0	101
Netherlands	332	386	565	465	2,354	1,624	4,402	3 195	2,437	4,414
Poland-Danzig	15	21	234	58	70	160	1,031	803	211	1,207
Portugal	0	0	10	189	0	0	60	432	0	455
Roumania	—	—	..	..	—	—	2) 273	2) 253	—	654
United Kingdom	14	23	130	135	135	140	2,156	1,872	202	2,490
Sweden	—	—	13	8	—	—	258	192	—	234
Switzerland	0	0	10	17	0	0	263	293	0	521
Czechoslovakia	0	0	65	79	0	0	879	836	0	1,138
Yugoslavia	0	0	53	12	3	0	299	282	0	492
U. S. S. R.	.	...	...	...	1) 14	1) 15	1) 744	1) 699	21	1,159
Canada	3	5	48	10	33	20	681	700	28	783
Haiti	—	—	...	..	—	—	2) 21	2) 26	—	44
Chile	—	—	.		—	—	3) 173	3) 235	—	356
Colombia	—	—	.	.	—	—	3) 73	3) 149	—	267
Peru	. .	...		.	2) 0	2) 0	2) 174	2) 584	0	737
Ceylon	0	0	905	996	1	2	9,363	9,173	2	11,926
China	...	...	...	...	2) 448	2) 386	2) 5,053	2) 6,328	592	6,842
Netherlands Indies:										
Java and Madura	.	...	..	...	1) 175	1) 124	1) 33	1) 158	263	190
Outer Provinces	.	...	...	...	1) 184	1) 138	1) 1,638	1) 3,200	246	4,915
Japan	...	...	...	...	4) 98	4) 67	4) 32	4) 158	234	1,221
British Malaya	. .	...	...	...	2) 1,461	2) 2,291	2) 8,623	2) 9,197	4,091	16,150
Manchukuo	. .	. .	..	...	1) 40	1) 26	1) 1,434	1) 1 643	40	2,362
Palestine: Br m. t.	...	...	...	...	1) 92	1) 0	1) 342	1) 207	0	396
Syria & Leb.: Fr.m.t.	0	0	21	29	0	0	322	251	0	412
Turkey	—	—	.	.	—	—	1) 0	1) 5	—	7
Algeria	24	1	16	21	56	3	692	211	11	422
Madagascar	...	...	...	. .	1) 56	1) 36	1) 15	1) 38	54	65
French Morocco	—	—	...	. .	—	—	3) 337	3) 64	—	187
Tunis	0	0	77	12	0	0	379	43	0	114
Union of South Afr.	...	. .	...	...	1) 0	1) 0	1) 988	1) 864	0	1,266
Australia	48	28	2	7	424	184	73	44	267	72
New Zealand	...	...	...	...	2) 1	2) 0	2) 50	2) 52	0	71
Totals	6) 7,832	5,863	9) 5,993	4,758	7) 105,716	89,176	10) 79,803	65,159	121,970	93,679

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1) Up to 31 August — 2) Up to 31 July. — 3) Up to 30 June. — 4) Up to 31 May — 5) Up to 30 April — 6) Including 1,020 thousand centals exported from Burma to India — 7) Including 17,366 thousand centals exported from Burma to India from 1st April 1937 — 8) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 9) Including 1,722 thousand centals imported from Burma into India. — 10) Including 16,410 thousand centals imported from Burma into India from 1st April 1937

Linseed. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (January 1-Dec 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries										
Lithuania	63	28	0	0	172	246	0	0	525	0
Romania	. .	.	.	.	2) 3	2) 2	2) 0	2) 0	39	0
Argentina	2,323	3 384	—	—	30,660	23,326	—	—	32 743	—
Uruguay	.	.	—	—	2) 943	2) 1,305	—	—	1,648	—
China	. .	..	—	—	2) 260	2) 707	—	—	812	—
India by sea 5)	822	929	0	0	3,794	5,202	0	0	6,959	0
» by land 5)	—		...	.	—	—	3) 160	3) 190	—	308
Iraq	.		—	—	1) 24	1) 14	—	—	24	—
French Morocco	..	.	—	—	3) 48	3) 26	—	—	211	—
Tunis	0	0	0	0	1	0	1	0	0	0
New Zealand	. .	...	. .		2) 4	2) 2	2) 0	2) 0	9	0
Importing Countries										
Germany	0	0	291	215	0	0	3 126	3,620	0	4 824
Austria	0	0	1	1	0	2	7	8	2	13
Belgo Luxemb E U.	4	9	215	164	63	101	1 865	1 767	124	2 419
Denmark	—	—	42	31	—	—	392	343	—	449
Spain	—	—	—	—	—	—	—	—	—	-
Estonia	0	0	0	0	8	2	0	20	3	20
Finland	0	0	2	20	0	0	112	110	0	136
France	0	0	548	556	6	3	4 991	5 027	4	6 179
Greece	0	0	10	4	0	0	84	41	0	71
Hungary	0	0	0	0	1	0	19	4	0	4
Irish free State	0	0	14	10	0	0	82	89	0	120
Italy	0	0	144	130	0	0	1,321	826	0	1 194
Latvia	0	0	0	1	43	26	12	35	47	59
Norway	0	0	76	48	0	0	458	397	0	473
Netherlands	10	4	458	707	103	81	5 131	5 489	101	7 287
Poland-Dantzig	0	2	0	0	0	78	0	0	78	0
United Kingdom	0	0	299	544	0	1	4,667	4,770	1	6 088
Sweden	—	—	74	104	—	—	855	625	—	808
Czechoslovakia	0	0	20	15	0	0	475	357	0	536
Yugoslavia	0	0	7	0	0	0	154	60	0	95
Canada	0	0	56	78	3	30	524	544	101	726
United States	—	—	1,125	1,015	—	—	12,813	5,277	—	8 604
Burma 6)	0	—	0	—	0	—	0	—	—	—
Japan	...	..	...	..	4) 0	4) 0	4) 98	4) 110	0	284
Palestine. Br m t	—	0	. .	...	—	—	1) 19	1) 24	—	27
Algeria	0	0	0	0	0	2	29	1	3	2
Egypt	...	...	...	...	1) 10	1) 2	1) 0	1) 2	4	7
Australia	0	0	78	11	0	0	644	375	0	515
Totals	**3,222**	**4,356**	**3.460**	**3,654**	**36.146**	**31.158**	**38,039**	**30,111**	**43,438**	**41,248**

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1) Up to 31 August — 2) Up to 31 July — 3) Up to 30 June — 4) Up to 31 May — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries — 6) From 1st April 1937

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:	**Cotton.** — Thousand centals (1 cental = 100 lb.).									
United States	3,311	2,980	25	46	4,494	3,940	67	109	28,443	1,278
Haiti	...	...	—	—	...	...	—	—	121	—
Santo Domingo	...	...	—	—	1) 0	1) 0	—	—	2	—
Argentina	33	137	—	—	52	298	—	—	675	—
Brazil	...	...	—	—	...	...	—	—	2) 4,408	—
Peru	...	...	—	—	...	...	—	—	1,751	—
Burma 4)	6	—	0	—	10	—	0	—	91	0
India: by sea 5)	374	641	1,862	40	1,021	1,320	1,972	115	17,250	1,979
» : by land 5)	...	...	—	—	3) 7	3) 6	—	—	2) 7	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 0	1) 0	—	—	28	—
Iraq	...	...	...	...	1) 0	1) 0	1) 0	1) 0	40	3
Iran	...	...	...	...	...	...	...	...	2) 371	2) 0
Syria and Lebanon Fr. m. t.	0	1	0	0	1	2	0	0	81	0
Turkey	...	...	—	—	1) 9	1) 10	—	—	321	—
Egypt	...	...	—	—	1) 234	1) 217	—	—	8,738	—
French Morocco	...	...	...	...	...	...	...	...	2) 1	2) 1
Union of South Afr.	...	...	...	...	1) 2	1) 1	1) 0	1) 1	11	1
Importing Countries:										
Germany	0	0	516	439	0	1	987	825	2	5,779
Austria	0	0	58	65	0	0	136	100	1	871
Belgo-Luxemb. E. U.	66	47	147	153	132	102	293	297	757	2,938
Bulgaria	0	0	18	17	0	0	38	27	0	193
Denmark	—	—	22	15	—	—	32	25	—	204
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	15	11	0	0	26	20	0	132
Finland	0	0	17	19	0	0	41	34	1	299
France	29	36	315	185	54	63	588	503	414	6,955
Greece	0	0	6	2	0	0	11	9	0	65
Hungary	0	0	32	45	0	0	62	85	0	552
Italy	0	0	262	422	0	0	534	1,053	0	3,598
Latvia	0	0	4	6	0	0	12	13	0	115
Lithuania	0	0	5	3	0	0	10	5	0	43
Norway	0	0	5	2	0	0	9	4	0	75
Netherlands	0	1	59	75	1	4	124	152	16	1,360
Poland - Dantzig	0	0	146	139	0	0	300	270	2	1,636
Portugal	—	—	29	25	—	—	54	48	—	555
Romania	...	...	...	...	...	...		...	0	316
United Kingdom	41	46	1,006	975	108	130	1,652	2,120	609	15,885
Sweden	—	—	45	29	—	—	78	67	—	754
Switzerland	0	0	33	17	2	0	64	51	5	715
Czechoslovakia	3	5	152	133	8	14	319	291	53	2,516
Yugoslavia	0	0	31	13	0	0	71	40	2	410
U. S. S. R.	...	...	...	...	1) 107	1) 0	1) 40	1) 7	508	443
Canada	—	—	57	93	—	—	118	164	—	1,661
Chile	—	—	...	...	—	—	...	...	—	2) 43
Colombia	—	—	...	...	—	—	...	...	—	2) 61
Ceylon	0	0	1	1	0	0	3	2	0	20
China	...	...	...	...	...	...	...	...	1,213	504
Chosen	...	...	...	...	1) 0	1) 0	1) 1	1) 1	0	31
Taiwan	—	—	...	...	—	—	...	...	—	2) 7
Indo-China	...	...	...	...	...	...	...	...	19	253
Japan	...	...	...	...	...	...	...	...	3) 598	3) 19,031
Manchukuo	...	...	...	...	1) 0	1) 0	1) 47	1) 37	3	735
Palestine: Br. m. t.	...	...	...	...	1) 0	1) 0	1) 1	1) 0	0	12
Algeria	0	0	0	0	0	0	1	0	2	5
Australia	0	0	13	4	0	0	29	9	0	52
Totals	**3,863**	**3,894**	**4,881**	**2,964**	**6,242**	**6,108**	**7,720**	**6,484**	**66,544**	**72,117**

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1) Up to 31 August. — 2) Up to 30 June. — 3) Up to 31 May. — 4) From 1st April 1937. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	SEPTEMBER				TWELVE MONTHS (Sept. 1-August 31)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries	**Wool.** — Thousand lb.									
Hungary	0	110	24	22	1,118	952	1,133	1,900	—	—
Irish Free State	1,186	1,748	75	57	16,535	16,103	853	569	—	—
Argentina a)	6,432	7,672	—	—	253,323	230,144	—	—	—	—
b)	2,945	2,791	—	—	44,586	48,976	—	—	—	—
Chile	...	...	...	...	2) 28,074	2) 18,047	2) 529	2) 1,276	—	—
Peru	...	...	—	—	1) 12,615	1) 11,674	—	—	—	—
Uruguay a)	...	...	...	...	1) 129,108	1) 90,183	1) 0	1) 0	—	—
b)	...	...	..	...	1) 12,622	1) 9,949	1) 0	1) 0	—	—
Burma 4)	18	—	0	—	97	—	2	—	—	—
China	...	...	—	—	35,373	28,907	—	—	—	—
India: by sea 5)	6,715	7,688	368	452	69,018	55,923	6,799	6,784	—	—
» **by land** 5)	—	—	...	...	—	—	2) 19,952	2) 14,121	—	—
Iraq	...	...	...	...	18,351	11,338	170	35	—	—
Iran	...	...	...	...	2) 12,053	2) 11,629	2) 0	2) 0	—	—
Manchukuo	...	...	...	...	6,746	6,329	1 777	1,321	—	—
Palestine. Br m t	..	...	...	...	520	205	399	20	—	—
Syria & Leb : Fr m.t.	1,960	985	22	42	8,697	4,930	955	223	—	—
Algeria	1,585	1,711	139	79	28 934	14,793	3,303	2,079	-	—
Egypt	...	..	...	...	6,019	4,096	60	64	—	—
French Morocco	...	...	...	...	2) 14,010	2) 3 102	2) 31	2) 33	—	—
Tunis	353	112	170	33	8,625	1,107	1,091	518	—	—
Un. of S. Africa a)		..	..	..	248,252	213,150	203	97	—	—
b)	..	..	.	...	8,997	6,512	1,984	2,174	—	- -
Australia a)	52,151	52,206	287	26	775,794	732,907	3,730	9,222	—	—
b)	4 601	3,633	2	2	67,865	64,627	104	157	—	—
New Zealand a)	1,784	3,898	...	.	236,912	262,902	1) 99	1) 90	—	—
b)	2,317	3,964	...	.	55,085	52,812	1) 4	1) 13	—	—
Importing Countries										
Germany a)	4	4	8,805	7,432	284	395	174,664	182,850	—	—
b)	11	7	2,244	3,801	212	1 146	37,906	35,991	—	—
Austria	9	15	313	586	161	251	19,789	23,671	—	—
Belgo-Luxemb. a)	4,398	2 897	5,789	7,366	98 053	68,859	276,778	220,794	—	-
Econ Un b)	2,138	2,033	575	1 111	27,373	26,500	7,255	5,426	—	—
Bulgaria	0	0	22	9	0	0	1 468	1,612	—	—
Denmark	20	90	538	869	498	392	5,661	4,921	—	—
Spain	—	—	—	—	—	—	—	—	-	—
Estonia	0	0	64	117	0	0	745	895	—	—
Finland	20	0	421	518	273	214	6,830	5,692	—	—
France	4,109	6,852	18,753	9,211	77,409	57,312	317,295	362,091	—	—
Greece	322	240	423	289	2,388	1,676	7,467	11,050	—	—
Italy a)	18	0	5,589	3,971	115	212	78,917	39,256	—	—
b)	57	0	492	538	1,382	42	6,504	8,871	—	—
Latvia	0	0	163	260	0	0	1,834	2,006	—	—
Lithuania	0	0	119	66	20	0	906	891	—	—
Norway	212	110	207	251	1,779	1,111	2,833	2,820	—	—
Netherlands a)	260	567	161	569	5,280	3,499	5,959	6,975	—	—
b)	73	108	465	306	977	1,235	6,909	5,110	—	—
Poland - Dantzig	20	15	2 247	5,463	287	168	50,027	44,406	—	—
Portugal	399	183	165	33	3,217	1,210	3,296	3,042	—	—
Romania	..	..	..		1) 1,089	1) 306	1) 1,676	1) 999	—	—
United Kingdom	7,196	14,196	29,489	34,282	301,179	321,201	841,794	879,321	—	- -
Sweden	—	—	1,991	2,143	—	—	21,945	20,324	—	—
Switzerland	35	29	324	1,153	291	256	16,700	15,973	—	—
Czechoslovakia	57	22	933	2,359	551	1,074	41,967	43,222	—	—
Yugoslavia	789	192	434	597	1,334	4,958	8,303	9,509	—	—
U. S. S. R. a)	...	...	...	...	0	0	50,312	49,077	—	—
b)	...	...	...	..	0	0	15,939	14,667	—	—
Canada	430	862	937	1,140	7,774	8,543	26,048	22,520	—	—
United States	18	0	16,896	19,637	31	24	376,833	241,894	—	—
Japan	...	...	..	...	3) 271	3) 833	3) 215,223	3) 232,090	—	—
Totals	**102,542**	**114,940**	**99,646**	**104,790**	**2,631,557**	**2,402,714**	**2,672,961**	**2,538,662**	—	—

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a) = Wool, greasy. — b) Wool, scoured. — 1) Up to 31 July — 2) Up to 30 June — 3) Up to 31 May. — 4) From 1st April 1937. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Butter. — Thousand lb.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	959	814	0	0	5,386	5,313	9	9	7,802	13
Bulgaria	2	24	0	0	22	42	0	0	73	0
Denmark	27,146	27,593	—	—	258,092	244,172	—	—	322,328	—
Estonia	3,627	4,032	0	0	21,702	18,521	0	0	24,152	0
Finland	2,105	2,456	0	0	25,397	23,113	0	0	30,836	0
Hungary	1,444	1,770	0	0	10,075	6,927	0	0	10,401	0
Irish Free State	5,580	7,319	0	0	36,731	47,395	1,459	9	58,032	11
Latvia	4,070	4,032	0	0	30,834	29,061	0	0	38,118	0
Lithuania	5,068	3,805	0	0	25,869	24,430	0	0	32,252	0
Norway	4	4	0	0	362	366	0	0	423	0
Netherlands	10,207	11,951	2	2	95,344	104,949	20	40	132,686	71
Poland-Dantzig	972	3,344	0	0	12,132	18,722	0	0	24,046	0
Romania	...	...	...	...	2) 68	2) 141	2) 0	2) 0	218	0
Sweden	5,902	4 072	0	0	40,382	31,013	2	412	42,126	414
Yugoslavia	29	60	—	—	214	240	—	—	269	—
U. S. S. R.	...	...	...	...	1) 25,602	1) 22,157	1) 24	1) 309	51,097	476
Argentina	112	366	—	—	14,043	14,855	—	—	22,642	—
Chile	...	...	...	...	3) 9	3) 15	3) 0	3) 0	31	0
Syria & Leb.: Fr. m. t.	11	53	0	13	194	445	132	130	750	161
Turkey	...	...	—	—	1) 7	1) 13	—	—	33	—
Union of South Afr.	...	...	...	...	1) 7,112	1) 7,624	1) 0	1) 0	9,273	0
Australia	7,804	10,318	0	0	112,595	129,165	0	4	185,672	4
New Zealand	25,064	27,783	—	—	249,319	225,256	—	—	313,168	—
Importing Countries.										
Germany	0	0	20,373	14,381	0	0	135,840	114,405	0	166,245
Belgo-Luxemb. E. U.	4	9	355	86	31	53	3,360	7,339	68	8,139
Spain	—	—	—	—	—	—	—	—	—	—
France	516	1,698	161	161	5,207	9,793	1,191	3,915	12,679	4,251
Greece	—	—	55	57	—	—	529	600	—	780
Italy	88	75	64	130	1,001	776	4,804	545	1,113	864
Portugal	4	0	0	9	57	0	26	214	11	340
United Kingdom	1,204	602	70,118	97,577	9,178	7,072	804,004	834,170	9,237	1,095,624
Switzerland	0	0	9	13	4	4	5,044	1,519	7	3,223
Czechoslovakia	0	0	176	119	840	2	1,676	485	379	496
Canada	53	214	7	0	373	4,949	57	110	5,130	119
United States	49	64	220	538	624	661	10,148	6,709	825	9,872
Peru	...	...	...	...	2) 0	2) 18	2) 75	2) 234	26	467
Burma 5)	0	—	57	—	0	—	348	—	—	—
Ceylon	—	—	57	66	—	—	538	571	—	805
China	—	—	...	...	—	—	2) 717	2) 633	—	939
India: by sea 6)	0	15	53	57	267	165	655	697	218	944
» **: by land** 6)	—	—	...	...	—	—	3) 3,940	3) 3,371	—	5,022
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 5,382	1) 6,318	—	9,196
Outer Provinces	—	—	...	...	—	—	1) 1,949	1) 2,114	—	3,078
Indo-China	...	...	...	...	2) 2	2) 2	2) 470	2) 379	4	917
Iraq	...	...	...	...	1) 7	1) 2	1) 15	1) 4	2	13
Iran	...	...	...	...	3) 0	3) 0	3) 0	3) 7	2	11
Japan	...	...	...	...	4) 13	4) 586	4) 1,164	4) 7	924	13
British Malaya	...	...	...	...	2) 335	2) 348	2) 2,840	2) 2,601	631	4,105
Manchukuo	—	—	...	...	—	—	1) 148	1) 115	—	190
Palestine: Br. m. t.	—	—	...	...	—	—	1) 3,741	1) 3,657	—	5,494
Algeria	0	0	355	355	4	7	3,104	2,989	9	4,394
Egypt	...	...	...	...	1) 11	1) 37	1) 778	1) 822	42	1,316
French Morocco	—	—	...	...	—	—	3) 1,581	3) 2,075	—	4,017
Tunis	0	0	90	137	2	4	1,265	1,400	4	2,026
Totals	**102,024**	**112,473**	**92,152**	**113,701**	**989,447**	**978,414**	**997,035**	**998,918**	**1,337,739**	**1,334,050**

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1) Up to 31 August. — 2) Up to 31 July. — 3) Up to 30 June — 4) Up to 31 May. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
	Cheese. — Thousand lb.									
Exporting Countries:										
Austria	851	311	161	141	7,291	5,948	1,592	1,495	8,620	1,878
Bulgaria	628	564	0	0	2,313	2,930	0	0	4,206	0
Denmark	1 746	1,486	4	2	15,230	16,034	20	15	21,008	22
Estonia	40	13	0	0	397	117	0	0	198	6
Finland	1,607	1 001	4	2	10,371	7,952	20	11	10,864	20
Italy	4,367	4,054	1.001	1,265	36,026	24,152	6,468	7,324	42,845	8,453
Latvia	9	7	0	0	154	64	0	0	119	0
Lithuania	11	185	0	0	518	642	2	2	972	2
Norway	368	309	60	26	3,062	2,496	262	163	3,404	269
Netherlands	12,529	11,374	77	88	102,074	91,810	564	639	125,311	869
Poland-Dantzig	150	2	20	11	1,288	110	168	161	441	223
Romania	...	...	...	...	2) 44	2) 26	2) 35	2) 20	128	55
Switzerland	4,786	4,277	234	287	28,519	32,545	2,566	2,260	40,737	3,505
Czechoslovakia	176	57	298	313	1,003	1,052	1,989	2,068	1,554	2,555
Yugoslavia	498	476	7	2	2,974	2,650	35	24	4,676	53
Canada	14,848	9,908	79	117	55,788	44,778	957	719	81,891	1,241
Australia	249	331	—	—	2,134	2,048	—	—	2,818	—
Turkey	...	...	...	...	1) 20	1) 60	1) 9	1) 0	90	—
Union of South Afr.	...	...	...	...	1) 1,579	1) 1,224	1) 185	1) 137	1,369	238
Australia	1,402	104	11	11	9,656	6,235	93	60	12,454	99
New Zealand	12,705	12,730	...	...	140,812	133,658	2) 2	2) 0	185,722	0
Importing Countries:										
Germany	4	13	8,133	5,598	134	205	57,629	46,875	262	61,507
Belgo-Luxemb. E. U.	29	37	5,152	5,108	280	265	37,618	37,796	366	50,832
Spain	—	—	—	—	—	—	—	—	—	—
France	2,004	1,700	2,619	2,952	18,186	16,934	21,511	23,658	23,345	32,512
Greece	71	46	13	18	611	373	580	291	705	370
Hungary	42	33	0	0	734	527	0	0	767	2
Irish Free State	243	236	2	2	1,056	1,160	31	75	1,814	88
Portugal	13	4	26	86	108	90	154	212	121	346
United Kingdom	509	399	29,994	23,629	4,242	4,464	240,953	213,939	6,023	300,628
Sweden	—	—	223	311	—	—	1,512	2,337	—	3,530
U. S. S. R.	...	...	...	...	1) 26	1) 40	1) 472	1) 494	90	756
United States	106	88	4,811	5,796	899	862	42,175	42,064	1,135	59,851
Chile	...	...	...	...	3) 9	3) 15	3) 33	3) 22	26	44
Peru	—	—	...	...	—	—	2) 467	2) 364	—	648
Burma 5)	0	—	9	—	0	—	46	—	—	—
Ceylon	—	—	13	18	—	—	150	134	—	220
India: by sea 6)	42	0	97	106	44	2	922	752	2	1,184
Netherlands Indies: Java and Madura	—	—	...	...	—	—	1) 1,208	1) 1,102	—	1,733
Indo-China	...	...	...	...	2) 0	2) 2	2) 399	2) 362	2	602
Iraq	...	...	...	...	1) 13	1) 7	1) 24	1) 24	7	62
Iran	...	...	...	...	3) 0	3) 0	3) 0	3) 2	0	2
Japan	—	—	...	..	—	—	4) 35	4) 40	—	168
British Malaya	...	...	...	...	2) 18	2) 4	2) 258	2) 176	18	337
Palestine: Br. m. t.	...	...	...	...	1) 15	1) 55	1) 1,490	1) 1,034	57	1,845
Syria & Leb.: Fr. m. t.	31	51	57	73	406	278	575	708	470	957
Algeria	4	2	994	955	40	57	8,404	8,104	84	11,025
Egypt	...	...	...	...	1) 35	1) 18	1) 4,484	1) 4,493	44	7,771
French Morocco	—	—	...	...	—	—	3) 1,841	3) 1,819	—	3,673
Tunis	2	0	192	262	40	95	1,953	2,017	104	2,915
Totals	**60,070**	**49,798**	**54,291**	**47,179**	**448,149**	**401,984**	**439,891**	**403,992**	**584,869**	**563,096**

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1) Up to 31 August. — 2) Up to 31 July. — 3) Up to 30 June. — 4) Up to 31 March. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cacao. — Thousand lb

COUNTRIES	September Exports 1937	September Exports 1936	September Imports 1937	September Imports 1936	Twelve months (October 1-September 30) Exports 1936 37	Twelve months (October 1-September 30) Exports 1935 36	Twelve months (October 1-September 30) Imports 1936 37	Twelve months (October 1-September 30) Imports 1935 36	Twelve months (Oct 1 Sept 30) Exports 1935 36	Twelve months (Oct 1 Sept 30) Imports 1935 36
Exporting Countries										
Grenada	220	117	—	—	7 877	8 228	—	—	—	—
Haiti	174	88	—	—	3 168	3 611	—	—	—	—
Santo Domingo			—	—	1) 41 467	1) 40 040	—	—	—	—
Brazil			—	—	3) 128 545	3) 166 494	—	—	—	—
Equador	2 205	1 179	—	—	43 475	45 096	—	—	—	—
Trinidad	1 102	1 142	—	—	28 415	27 805	—	—	—	—
Venezuela	1 764	2 205	—	—	28 660	29 198	—	—	—	—
Ceylon	187	481	—	—	8 662	6 102	—	—	—	—
Netherlands Indies										
Java and Madura			—	—	1) 2 762	1) 3 503	—	—	—	—
Cameroon Fr. m. t.	6 912	3 309	—	—	61 476	52 927	—	—	—	—
Ivory Coast	564	2 286	—	—	113 565	108 812	—		—	—
Gold Coast	28 050	31 795	—		672 000	639 440	—	—	—	—
Madagascar			—	—	1) 503	1) 805	—	—	—	—
Nigeria and Cameroon Brit. m. t.	14 017	6 826		—	227 800	204 349	—	—	—	—
St. Thomé and Principe Islands	529	1 717	—	—	18 162	31 775	—	—	—	—
Togo Fr. m. t.	168	963	—	—	18 559	21 182	—	—		—
Importing Countries										
Germany	192	0	15 324	15 084	3 100	7	160 468	172 395	—	—
Austria	—		895	1 182	—		13 411	13 038	—	—
Belg. Luxemb. E. U.	0	49	1 552	3 880	134	123	22 381	24 996	—	—
Bulgaria	—		117	53		—	1 356	1 559		—
Denmark			836	238		—	9 434	9 914	—	—
Spain				—			—	—	—	
Estonia	—		88	35		—	686	844	—	—
Finland			31	44			298	304		—
France	0	0	7 266	8 845	522	9	92 054	104 114		—
Greece	—		183	157	—	—	3 045	3 638	—	—
Hungary	—	—	668	902		—	8 047	9 961	—	—
Irish Free State		—	68	132			3 239	3 349	—	—
Italy	—		1 323	1 133			15 069	21 050	—	—
Latvia			112	95	—	—	1 151	1 199		—
Lithuania			29	53			877	1 047	—	—
Norway	—		201	798	—		7 236	5 514	—	—
Netherlands	291	600	5 657	11 696	6 301	5 181	126 976	152 545		—
Poland Dantzig		—	1 116	1 038	—		14 405	14 035	—	—
Portugal		2	82	46	7	66	972	1 091	—	—
Roumania	—	—			—	—	) 5 478	2) 5 450	—	
United Kingdom	1 019	1 257	3 444	5 009	7 718	8 494	230 476	276 108	—	—
Sweden	—	—	705	1 135		—	12 824	12 178	—	—
Switzerland	0	15	254	397	51	68	15 920	17 183	—	
Czechoslovakia	—	—	1 177	1 821	—	—	26 550	27 055	—	—
Yugoslavia	—	—	179	22	—	—	2 471	1 845	—	—
U. S. S. R.	—					—	1) 16 627	1) 15 346		
Canada	—	—	1 272	2 765			33 270	27 847	—	—
United States	—		56 553	51 108			715 424	580 159	—	
Chile	—	—			—	—	1) 1 521	3) 1 532	—	—
Colombia		—			—		) 4 925	3) 4 795	—	—
Peru					) 9	) 26	) 143	) 620	—	—
Uruguay	—	—				—	2) 551	) 750	—	—
Iran	—	—				—	3) 9	26	—	
Japan	—	—			—	—	4) 2 665	4) 2 150	—	—
British Malaya					) 139	) 134	) 141	) 99	—	—
Palestine Br. m. t.	—	—			—	—	1) 547	1) 717		—
Syria & Leb. Fr. m. t.	—	—	2	0	—	—	9	13	—	—
Algeria	0	0	7	7	108	71	419	686		—
Egypt	—	—			—	—	1) 509	1) 472	—	—
French Morocco	—	—			—	—	3) 86	3) 79	—	—
Tunis	—	—	0	0	—	—	18	35	—	—
Union of South Africa	—	—			—	—	1) 2 480	1) 3 164	—	—
Australia	0	22	101	90	37	104	14 357	12 403	—	—
New Zealand	—	—			—	—	) 2 831	) 3 080	—	—
Totals	**57 394**	**54 053**	**99 242**	**107,765**	**1,423 222**	**1,403 650**	**1,569 306**	**1,532 644**	—	—

1) Up to 31 August — 2) Up to 31 July. — 3) Up to 30 June — 4) Up to 31 March

COUNTRIES	September				Three months (July 1-September 30)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Tea. — Thousand lb										
Exporting Countries										
Ceylon	14,546	13,730	0	0	48,054	48,808	0	0	202,290	0
China	...	...	...	...	2) 7,721	2) 8,431	2) 26	2) 31	91,904	917
Chosen	..		...	..	1) 22	1) 24	1) 2	1) 0	154	22
Taiwan	...	...	...	...	...	...	...	...	22,313	134
India by sea 4)	52,852	40,332	247	686	126,923	111,347	1,133	1,285	299,618	4,021
» : by land 4)	...	...	...	...	...	.	...	...	15,752	1,764
Netherlands Indies.										
Java and Madura.	...	...	...	...	1) 18 142	1) 18,107	1) 75	1) 115	116,709	661
Outer Provinces	...	..	—	—	1) 5,287	1) 4,647	—	—	28,479	—
Indo-China	..	..	...	...	2) 370	2) 278	2) 108	2) 130	3,364	1,493
Japan	...	...	..	..	.	.			3) 36,032	3) 1,012
Importing Countries										
Germany	35	0	858	776	108	0	2,586	2,266	150	10,809
Austria	—	—	75	66	—	—	154	163	—	794
Belgo-Luxemb. E.U	0	0	53	55	0	2	141	176	2	668
Bulgaria	—	—	9	15	—	—	15	31	—	84
Denmark	—	—	185	139	—	—	273	311	—	1,252
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	11	9	—	—	22	22	—	99
Finland	—	—	26	18	—	—	62	51	—	293
France	0	0	185	302	2	2	677	703	15	3,280
Greece	—	—	15	9	—	—	53	245	—	395
Hungary	—	—	55	40	—	—	97	93	—	511
Irish Free State	37	2	2 831	2,169	412	4	6 532	5,370	342	22,869
Italy	—	—	22	9	—	—	68	18	—	225
Latvia	—	—	4	7	—	—	15	13	—	73
Lithuania	—	—	4	11	—	—	18	11	—	82
Norway	—	—	64	29	—	—	112	68	—	362
Netherlands	15	7	2,037	2,441	49	24	6,294	6,823	112	27,322
Poland-Dantzig	0	0	344	240	0	0	882	628	2	4,081
Portugal	—	—	20	15	—	—	79	75	—	397
Romania	—	—			—	—	2) 66	2) 31	—	730
United Kingdom	5,723	5,569	47 466	49 124	17,478	17,600	125,787	126 921	70,804	439,361
Sweden	—	—	77	93	—	—	201	236		990
Switzerland	2	2	159	170	7	7	355	388	31	1,786
Czechoslovakia	—	—	154	143	—	—	300	291		1,235
Yugoslavia	—	—	73	2	—	—	115	55	—	401
U. S S R.	...	...	.	...	1) 5,322	1) 1,931	1) 4 592	1) 7 178	10,507	32,849
Canada	—	—	3,219	2,890	—	—	9,207	7,106	—	38,923
United States	—	—	8,007	9,037	—	—	21,537	21,345	—	92,273
Chile	—	—	...	.	—	—		.	—	5,988
Peru	—	—	...	...	—	—	2) 152	2) 97	—	1 191
Burma 5)	4	—	388	—	68	—	877	—	—	—
Iraq	...	...	..	...	1) 0	1) 2	1) 1,036	1) 1,074	9	7,015
Iran	...	...	...	..	...	...	..		0	19,520
British Malaya	.	..	...	..	2) 112	2) 130	2) 494	2) 624	1,168	5,251
Manchukuo	—	—	...	.	—	—	1) 3,402	1) 3,536	—	12,181
Palestine: Br. m t.	...	...	...	.	1) 0	1) 0	1) 75	1) 68	0	721
Syria & Leb.: Fr. m. t.	0	0	13	68	0	0	46	90	0	474
Turkey	—	—	..	...	—	—	1) 126	1) 381	—	2,504
Algeria	0	2	236	311	0	2	1 003	1,336	4	3,693
Egypt	—	—	...	..	—	—	1) 2,366	1) 2,599	—	15,779
French Morocco	..	..	.	...	...	...	..	.	348	19,903
Tunis	—	—	375	207	—	—	1,404	774	—	3,411
Union of South Afr.	...	...	...	..	1) 46	1) 163	1) 2,701	1) 2,661	668	15,448
Australia	49	44	3,710	3,428	132	161	11,171	12,622	608	48,797
New Zealand	...	...	..	...	2) 13	2) 13	2) 1 118	2) 1,193	163	11,325
Totals	**73,263**	**59,688**	**70,922**	**72,509**	**230,268**	**211,683**	**207,555**	**209,234**	**901,550**	**865,369**

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1) Up to 31 August. — 2) Up to 31 July — 3) Up to 31 May — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries 5) From 1st April 1937

Coffee. - Thousand lb

COUNTRIES	September				Three months (July 1 September 30)				Twelve months (July 1 June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936 37	1936 37
Exporting Countries										
Costa Rica	476	359	—	—	4 522	2 101	—	—	56 174	—
Cuba			—	—			—	—	4) 8 620	—
Guadalupe			—	—			—	—	952	—
Guatemala			—	—			—	—	108,677	—
Haiti	2 216	2 240	—	—	5 587	7 308	—	—	56 412	—
Nicaragua			—	—	1) 1 596	1) 3 084	—	—	36 980	
Santo Domingo	542	1 530	–	—	2 200	3 960	—	—	27 238	–
Salvador			—	—	1) 11 607	1) 10 245	—	—	138 797	—
Brazil	127 070	146 061	—	—	330,265	436,287	—	—	1 753 477	—
Colombia	39 287	42 457	—	-	139 716	135 807	—	—	522 354	—
Dutch Guiana			-	—	1) 542	1) 1 995	—	—	7 000	—
Peru					2) 496	) 639	2) 0	2) 0	7 152	7
Aden by sea			-	—	1) 944	1) 1 601	—	—	9 162	—
India by sea 5)	604	2 299	0	0	754	3 214	0	0	18 193	128
Netherlands Indies										
Java and Madura			—	—	1) 18 206	1) 6 570	—	—	75 855	—
Outer Provinces			-	—	1) 42 472	1) 32 214	-	—	152 426	—
Indo China					) 62	) 71	1) 26	1) 20	937	157
Ivory Coast			—	—	1) 4 643	1) 1 345	—	—	15 313	—
Angola			-	—			—	—	41 465	—
Kenya	1 109	2 915	—	-	3 137	6 460	—	—	39 143	—
Madagascar				—	7 200	5 924	—	—	61 139	—
Importing Countries										
Germany	0	0	31 290	28 643	0	0	91 197	86 391	0	380 579
Austria	0	0	1 056	1 065	0	0	2 780	3 067	0	11 513
Belgo Luxemb E U	130	60	8 289	8 728	1 797	309	23 184	28 169	3 538	113,896
Bulgaria			99	119	—	—	276	282	—	1,217
Denmark		—	8 329	7 348	-	-	13 735	16 722	-	62 673
Spain	—	—	-	—	—	—		—	—	—
Estonia		—	20	9	-	-	68	66	—	223
Finland	—	—	3 898	4 107	—	—	11 530	12 575	—	47 803
France	4	4	27 342	30 629	9	13	100 161	97 041	37	413 278
Greece	—		1 173	864	—		3 351	3 276	—	14 163
Hungary	—	-	370	397	—		1 060	994	—	4 319
Irish Free State	0	0	42	31	0	0	150	128	0	547
Italy	2	0	5 893	6 356	4	4	17 450	14 875	7	81,183
Latvia	-		26	24	—	-	108	75	—	342
Lithuania	-		15	29		-	84	90	—	359
Norway			2 729	2 672	—	—	8 259	7 374	—	38 784
Netherlands	267	7	5 212	3 062	1 085	60	16 087	5 860	2 515	64,884
Poland Dantzig	2	2	1 087	492	43	4	3 256	2 928	15	12 551
Portugal	126	187	2 053	899	536	697	3 640	3 719	2,231	14 581
Rumania	—	—			—		1) 390	) 395	—	7 368
United Kingdom	492	1 252	481	703	1 347	3 993	2 425	2 000	15 126	45 435
Sweden	-	-	8 481	8 964			24 826	25 369	—	105,547
Switzerland	0	0	2 079	2 326	2	0	6 069	7 736	4	34 300
Czechoslovakia	-	-	1 927	2 064	—	—	5 644	5 637	—	24 877
Yugoslavia	-	-	1 362	1 135	—		3 448	2 776	—	14 599
U S S R		—			—		1) 128	1) 137	—	710
Canada	24	11	2 714	3 029	71	55	8 347	8 611	276	38 951
United States	317	459	111 100	127 994	1 069	1 739	322 026	366 220	11 213	1 760,838
Chile	—				—	—			—	7 242
Uruguay	—	—			—		) 470	) 593	-	4 747
Ceylon	0	0	267	450	0	0	955	1 102	2	3 243
Burma (6)	7	-	26		7	—	77	—	—	—
Iraq					1) 0	1) 0	1) 218	1) 141	0	1 918
Iran									0	187
Japan	—	—			—	—			—	3) 11 111
British Malaya					2) 712	) 575	2) 2 033	2) 1 667	5 919	18 023
Manchukuo	—	—			—	—	1) 86	1) 68	—	529
Palestine Br m t					1) 0	1) 0	1) 617	1) 306	0	3 206
Syria & Leb Fr.m t	0	0	278	282	0	0	648	556	0	2 566
Turkey	—	—			—	—	1) 1 521	1) 1 704	—	11,105
Algeria	0	0	2 103	2 606	0	0	8 737	8 073	4	30 688
Egypt	—	—			—	-	1) 2 344	1) 2 531	—	15 596
French Morocco	—	—			—	—			—	5 102
Tunis	0	0	346	298	0	0	787	728	0	3 104
Union of South Afr					1) 2	1) 0	1) 4 445	1) 5 739	13	31,952
Australia	0	2	344	315	9	15	1 019	1 069	75	4 123
New Zealand					2) 0	2) 0	2) 24	2) 75	0	538
Totals	**172,675**	**199,845**	**230,431**	**245,640**	**580,603**	**666,289**	**693,686**	**726,885**	**3,178,441**	**3,450,792**

1) Up to 31 August 2) Up to 31 July 3) Up to 31 May — 4) Up to 31 March — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries 6) From 1st April 1937

STOCKS

Total wheat in the United States 1).

Location	October 1937	July 1937	April 1937	October 1936	October 1935
	First day of month				
	1 000 centals				
On farms	200 248	13 128	43 034	3) 135 303	3) 161 501
In interior mills and elevators	94 384	7 387	24 161	68 190	61 825
Commercial wheat in store	84 898	9 718	20,845	49 709	47,822
In merchant mills and attached elevators 2)	68 432	27 140	37 876	66 171	69 602
Stored for others in merchant mills 2)	14 464	4 600	1 714	5 610	4 741
Total U. S. wheat as grain	*462 426*	*61 973*	*127 630*	*324 983*	*345 491*
Flour (in terms of grain) in merchant mills 2)	15 115	11 404	12 275	14 275	11 830
Total U. S. wheat	*477 541*	*73 177*	*139 905*	*339 258*	*357 321*
Canadian wheat in store in bond in the U. S.	868	3 187	7 213	11 406	12 360
Wheat of other origin in store in bond in the U. S.	0	0	0	0	*22*
TOTAL WHEAT IN THE U. S.	**478,409**	**76,354**	**147 118**	**350,664**	**369,703**

1) Incomplete data wheat in transit that has not been purchased by merchant millers and wheat flour other than that in mills, are not included Also wheat in transit to merchant mills and attached elevators and stocks of wheat bought to arrive" at merchant mills, have been omitted because the greater part of this wheat is already included in the data given of stocks at these mills — 2) The figures of the Bureau of Census partial quarterly census are raised to represent all mills — 3) Revised figures

Wheat and wheat-flour held by commercial mills in the United States 1).

Location	September 1937	June 1937	March 1937	September 1936	September 1935
	1st day of month				
	1,000 centals				
Wheat stocks, the property of commercial millers 2)					
Wheat held in mills, and mill elevators attached to mills	63 847	25 321	35 452	61 142	64 104
Wheat in country or terminal elevators not attached to mills	24 622	4 019	8 058	18,595	16 979
Total	*88 469*	*29 340*	*43 510*	*79,737*	*81 083*
Wheat flour in mills and warehouses, and in transit, sold and unsold	9 802	7,395	7 986	9,168	7 574
Wheat stored for others in mills and mill elevators	13 495	4,292	1 604	5,184	4,366
GENERAL TOTAL 3)	**116,067**	**44,272**	**56,604**	**98,111**	**96,345**

1) Partial census by the "Bureau of Census", including mills accounting for over 90 % of the total capacity of all commercial mills — 2) For wheat "in transit" etc, see note 1 in preceding table — 3) Including flour in terms of grain

Commercial cereals in store in Canada and the United States.

SPECIFICATION	November 1937	October 1937	September 1937	November 1936	November 1935
	Friday or Saturday nearest 1st of month				
	1,000 centals				
WHEAT					
Canadian in Canada	43 170	43 634	28 330	79 028	143 645
U S in Canada	1 466	1 046	869	0	0
U S in the United States	78 156	84 898	82 759	45 854	50 596
Canadian in the United States	1 448	868	1 528	13 369	19,230
Of other origin in the United States	0	0	0	0	11
Total	*124 240*	*130 446*	*113 486*	*138 251*	*213 482*
RYE					
Canadian in Canada	721	732	594	1 291	2 490
U S in Canada	463	595	504	0	0
U S in the United States	3 488	3 289	2 998	3 477	5 089
Canadian in the United States	0	0	0	323	0
Of other origin in the United States	0	0	0	57	48
Total	*4 672*	*4 616*	*4 096*	*5 148*	*7 627*
BARLEY					
Canadian in Canada	5 981	6 090	3 915	7 136	4 884
U S in Canada	42	81	153	0	0
U S in the United States	6 417	6 467	5 584	9 586	8 849
Canadian in the United States	142	147	123	1 089	54
Of other origin in the United States	0	0	0	0	0
Total	*12 582*	*12 785*	*9 775*	*17 811*	*13 787*
OATS					
Canadian in Canada	3 121	1 961	967	5 927	4 655
U S in Canada	880	105	135	0	0
U S in the United States	8 676	9 150	7 101	15 564	14 624
Canadian in the United States	0	0	0	2	50
Of other origin in the United States	0	0	0	0	0
Total	*12 677*	*11 216*	*8 203*	*21 493*	*19 329*
MAIZE					
U S in Canada	1	1	1	6	1
Of other foreign origin in Canada	2 722	2 102	2 395	280	629
U S in the United States	2 898	3 165	3 015	2 395	1 154
Of other origin in the United States	128	276	0	211	172
Total	*5 749*	*5 544*	*5 411*	*2 892*	*1 956*

Quantities of cereals on ocean passage with first destination Europe.

PRODUCTS	November 1937	October 1937	September 1937	November 1936	November 1935
	Saturday nearest 1st of month				
	1 000 centals				
Wheat (and flour in terms of grain)	16 262	13 032	12 029	20 371	17 184
Rye	456	490	389	634	245
Barley	2 952	2 880	2 796	3 004	2 280
Oats	579	301	410	774	515
Maize	29 030	25 752	20 736	23 981	17 486

AUTHORITY *Broomhall's Corn Trade News*

Cereals and potatoes belonging to farmers in Germany.

PRODUCTS	Percentage of total production				Stocks in 1,000 centals			
	31 Oct. 1937	30 Sept. 1937	31 Oct 1936	31 Oct. 1935	31 Oct. 1937	30 Sept 1937	31 Oct. 1936	31 Oct. 1935
Winter wheat	59	67	64	64	50,700	57,600	62,100	60,400
Spring wheat	77	81	78	80	8,300	8,700	5,600	6,900
Rye	59	68	66	68	88,000	101,400	107,500	112,100
Winter barley	48	56	45	47	10,600	12,300	11,200	10,400
Spring barley	67	73	72	70	37,600	41,000	36,000	36,800
Oats	80	89	83	81	103,500	115,100	102,800	95,900
Late potatoes	76	93	78	—	851,500	1,042,000	768,600	—

AUTHORITY: ***Marktberichtstelle beim Reichsnährstand*** (The absolute figures are calculated by the I. I. A.)

Cereals in commercial elevators and mills in Germany 1).

PRODUCTS	Last day of month				
	October 1937	September 1937	August 1937	October 1936	October 1935
	1,000 centals				
WHEAT:					
Grain	22,223	22,723	17,628	14,678	30,029
Flour for bread	1,856	1,773	1,371	1,830	2,535
TOTAL 2)	*24,800*	*25,186*	*19,533*	*17,220*	*33,550*
RYE:					
Grain	21,868	22,068	18,208	13,812	25,379
Flour for bread	1,662	1,576	1,360	1,144	1,642
TOTAL 2)	*24,313*	*24,385*	*20,208*	*15,494*	*27,787*
BARLEY	6,065	6,438	5,322	2,641	4,114
OATS	3,594	3,508	2,687	2,908	3,887

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries). — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	November 1937	October 1937	September 1937	November 1936	November 1935
	1,000 centals				
WHEAT:					
Grain	5,400	5,136	6,000	3,624	3,120
Flour as grain	696	720	720	720	624
TOTAL	*6,096*	*5,856*	*6,720*	*4,344*	*3,744*
BARLEY	1,300	1,040	840	1,440	1,520
OATS	128	160	160	128	192
MAIZE	2,736	2,448	2,544	3,264	2,448

1) Imported cereals.
AUTHORITY: *Broomhall's Corn Trade News.*

Commercial cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	November 1937	October 1937	September 1937	November 1936	November 1935
	Saturday nearest 1st of month 2)				
	1,000 centals				
WHEAT					
Antwerp	1 352	1,251	1,222	1 243	1,546
Rotterdam	769	401	585	583	954
Amsterdam	2	4	7	13	12
RYE					
Antwerp	55	20	12	54	27
Rotterdam	77	46	22	19	88
Amsterdam	0	0	0	0	1
BARLEY					
Antwerp	471	84	137	452	316
Rotterdam	71	77	17	18	309
Amsterdam	3	1	0	6	2
OATS					
Antwerp	10	10	29	15	15
Rotterdam	0	0	0	0	0
Amsterdam	20	20	12	25	25
MAIZE					
Antwerp	51	0	9	15	158
Rotterdam	33	44	17	4	138
Amsterdam	16	16	46	2	5

1) Imported cereals 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES *Nederlandsche Silo, Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam* Rotterdam

Cotton stocks on hand in the United States.

LOCATION	October 1937	September 1937	August 1937	October 1936	October 1935
	Last day of month				
	1 000 centals				
In consuming establishments	6 928	4 836	4 687	6 849	5 245
In public storage and at compresses	47 674	33 862	17 114	39 215	41 432
TOTAL	*54 602*	*38 668*	*21,801*	*46 064*	*46 677*

Cotton stocks at Bombay and Alexandria.

LOCATION	November 1937	October 1937	September 1937	November 1936	November 1935
	Thursday nearest 1st of month				
	1 000 centals				
Bombay 1)	2,208	2 600	2 660	2 428	1 532
Alexandria 2)	1 705	897	348	2 177	1,305

1) **Stocks held by exporters, dealers and millers** — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES *East Indian Cotton Assn* and *Commission de la Bourse de Minet el Bassal*

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	November 1937	October 1937	September 1937	November 1936	November 1935
	1,000 centals				
Great Britain					
American	1,605	1 033	1,122	1,251	880
Argentine, Brazilian	577	643	609	918	106
Peruvian	436	387	292	292	314
East Indian	234	289	341	304	119
Egyptian Sudanese	460	509	584	715	712
W Indian, W and E African, and other	305	319	314	161	65
TOTAL	*3 617*	*3 180*	*3 262*	*3 641*	*2 196*
Bremen					
American	542	355	287	429	492
Other	264	189	242	334	309
TOTAL	*806*	*544*	*529*	*763*	*601*
Le Havre					
American	866	461	445	702	272
French colonial	36	33	34	28	15
Other	107	134	132	145	71
TOTAL	*1 009*	*628*	*611*	*87*	*358*
Total Continent 1)					
American	1,631	845	773	1 261	1 039
Argentine, Brazilian, Peruvian	247	186	243	387	280
East Indian	59	89	96	161	131
Egyptian	56	63	55	94	130
W Indian, W and E African and other	133	119	135	154	135
TOTAL	*2,126*	*1 302*	*1,302*	*2 057*	*1,715*

1) Including Bremen and Le Havre

AUTHORITIES *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*

PRICES

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated The monthly averages are based on the weekly quotations, and the yearly averages on the monthly)

DESCRIPTION	12 Nov 1937	5 Nov 1937	29 Oct 1937	22 Oct 1937	AVERAGE Oct 1937	Nov 1936	Nov 1935	Commercial Season 1) 1936-37	1935-36
Wheat.									
Budapest (a) Tisza wheat 78 kg p hl (pengo p quintal)	21 05	20 90	20 92	20 75	20 76	18 00	18 34	19 04	16 78
Braila Good quality (lei p quintal)	527	515	530	545	534	470	455	* 486	* 442
Winnipeg No 1 Manitoba (cents p 60 lb)	142	135 1/8	139 1/4	150 3/4	141 3/8	108 1/4	86 3/8	122 1/2	85
Chicago No 2 Hard Winter (cents p 60 lb)	n 100	n 96 1/2	n 103	107	108 5/8	123	n 114	130	109 3/4
Minneapolis (cents p 60 lb)									
No 1 Northern	108 1/4	101 1/4	110 3/4	113 3/4	114 1/2	135 7/8	122	141	119 3/8
No Amber Durum	96 1/4	90	101 1/4	104 1/4	7) 103 3/4	138 1/8	107 5/8	138 1/8	111 7/8
New York No 2 Hard Winter (cents p 60 lb)	115 [illegible]/8	111 3/8	119 [illegible]/8	121	123 5/8	134 1/4	127 [illegible]/8	142 3/8	124 3/4
Buenos Aires (a) Barletta 80 kg p hectol (paper pesos p quintal) 2)	14 20	14 70	15 60	17 60	16 47	10 84	8 15	12 28	9 53
Karachi White Karachi 2 barley 1 impurities (rupees p 656 lb)	30 13 0	29 15 0	30 12 0	30-0 0	30 7 7	29-0 7	25-8 10	31-4 11	24-7-6
Berlin Home grown (free at Brandenburg stations Rm p quintal) 3)	20 30	20 30	20 10	20 10	20 10	20 00	20 00	20 52	20 53
Hamburg c i f Rm p quintal)									
No 1 Manitoba	15 37	15 15	16 12	16 72	15 81	11 79	9 87	13 32	9 51
Barusso 80 kg p hl	11 71	11 81	11 98	12 00	12 32	10 11	7 96	11 90	8 74
Antwerp (francs p quintal)									
Home grown	140 00	140 00	140 00	140 00	139 40	123 00	92 80	135 40	100 90
No 1 Manitoba (Atlantic) (in bond)	181 50	181 00	186 00	185 00	183 80	137 10	112 80	154 50	110 80
Barusso (in bond) 4)	159 00	159 00	160 00	160 00	161 60	124 00	95 30	141 05	103 10
Paris Home grown (delivery regional depots 76 kg p hl frs p quintal) 5)	183 00	183 00	182 00	182 00	182 00	146 00	80 70	149 35	91 40
London (Mark Lane) Home grown (sh p 504 lb) on the farm	40	40 6	41 6	42 6	42 4 3/4	38 1 1/2	25 10 3/4	40 1 3/4	27/5 3/4
Liverpool and London (c i f parcels shipping current month sh p 480 lb)									
Danubian (on sample)	8) 36 10	37 3	38 9	38 6	38 7 3/4	8) 35 1 1/4	23 1 1/2	* 38 1 1/4	* 25 5 1/4
Russian (on sample)	39 9	41 1 1/2	43 1 1/2	45 6	43 9 1/4	n q	29 2 1/2	n q	* 29 -
No 1 Northern Manitoba (Atlantic)	53 10 1/2	52 3	9) 54 10 1/2	9) 56 9	9) 54 9 1/2	40 10 3/4	33 3 1/2	* 46 0 1/4	32/9
No 1 Northern Manitoba (Pacific)	54 4 1/2	52 9	9) 55	9) 56	9) *55 6	41 9	32 10 1/2	* 45 9 3/4	32/5 1/4
No 3 Northern Manitoba (Pacific)	10) 45 3	43 7 1/2	11) 45 9	11) 46 9	11) 46 8 1/2	39 10	30 2	44 1	30/5 3/4
No 2 Hard Winter (Gulf)	10) 39 7 1/2	10) 39 10 1/2	10) 42 3	43 9	44 1 3/4	n q	n q	n q	n q
Rosafe 63 1/2 lb p bush (afloat)	12) 40 6	12) 39 6	12) 40 6	12) 40	12) 40 7 1/4	12) 35	12) 26 10	* 39 3 3/4	* 28/9
White Karachi choice	42 6	42 6	43 6	43 3	43 9 1/2	38 9 1/2	n q	42 5 3/4	* 31/7 1/2
West Australian (cargoes)	13) 40 6	13) 41 9	9) 44 9	9) 45 6	45 6 1/2	14) 39 7	14) 29 3	43 2 1/2	* 30/2 1/2
New South Wales (cargoes)						14) 39 2 1/2	14) *28 8 1/4	43 0 1/2	* 29 9
Milan (b) Home grown soft Buono mercantile 78 kg p hl (lire p q) 6)	138 00	138 00	138 00	138 00	138 00	123 25	111 30	125 30	114 20
Rye.									
Berlin Home grown (free at Brandenburg stations Rm p quintal) 3)	18 80	18 80	18 60	18 60	18 60	16 30	16 30	16 82	16 68
Hamburg Plata 72 73 kg p hl (c i f Rm p quintal)	13) 10 47	13) 10 64	13) 10 74	10 74	10 83	7 51	5 03	10 30	5 27
Budapest Pest rye (pengo p quintal)	18 57	18 75	18 75	18 75	18 84	14 72	16 11	17 17	14 44
Warsaw Good quality (zloty p quintal)	24 12	23 75	23 75	24 07	24 11	18 50	13 37	21 58	13 26
Winnipeg No 2 (cents p 56 lb)	76 7/8	72	81 5/8	82 1/8	85 3/8	75 5/8	41 3/8	98 3/4	43 1/4
Minneapolis No 2 (cents p 56 lb)	72 3/4	66 1/8	72 3/4	71 3/8	73 1/4	91 5/8	49 1/8	99 [illegible]/8	53 1/8
Groningen (c) Home grown (fl p quintal)	7 17	7 20	7 90	7 90	* 7 72	7 79	6 65	* 8 12	* 7 08

* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a)* Thursday prices — *b)* Saturday prices — *c)* Prices on preceding Tuesday

1) August July — 2) As from February 1937 N° 2 Hard basis 80 kg p hl — 3) Fixed producers prices for the *price region* of Berlin See *Govt Measures*, No 11 p 74 and *Crop Report* Aug 1936 p 609 and July 1937 p 571 — 4) Commencing Aug 1937, "Bahia" — 5) During August 1935 spot quotations in the free market Sept 1935 Aug 1936 prices in the regulated market, delivery current month subsequently fixed producers prices (see notes in *Crop Report* Sept 1936, p 691, and Sept 1937, p 750) — 6) Commencing Aug 1936 prices free at mills in Milan (see note in *Crop Report* June 1937, p 474) — 7) 15 Oct 104 1/2 — 8) Afloat — 9) Shipping November — 10) Shipping December — 11) N° 3 Northern Manitoba, Atlantic, shipping November — 12) New crop shipping January February — 13) New crop shipping end November — 14) New crop, shipping December

Description	12 Nov. 1937	5 Nov. 1937	29 Oct. 1937	22 Oct. 1937	Average Oct. 1937	Average Nov. 1936	Average Nov. 1935	Average Commercial Season 1) 1936-37	Average Commercial Season 1) 1935-36
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	23.50	24.00	25.25	25.75	25.75	26.00	16.15	* 25.12	* 15.97
Braila: Average quality (lei p. quintal)	363	370	367	360	357	325	237	* 321	242
Prague: Malting, good quality; 68 kg. hl. (crs p. quintal) 2)	133.00	133.00	132.00	132.00	132.00	135.10	129.50	* 135.05	* 131.70
Winnipeg: No 4 Western (cents p. 48 lb.)	60 1/4	57 3/8	58 7/8	59 3/8	60 5/8	58 3/4	30 7/8	66 3/4	34 3/8
Chicago: Feeding (on sample; cents p. 48 lb.)	50	52	50	50	49 3/4	74 3/4	43 5/8	74 1/4	45 1/4
Minneapolis: No. 2 Feeding (c. p. 48 lb). 3)	55 1/8	53 1/2	54 1/8	53 1/2	6) 54 1/2	86 1/2	38 5/8	77 1/2	39 1/8
Berlin: Home grown, fodder (free at Brandenburg stations, Rm. p. quint.) 4)	17.00	17.00	16.90	16.90	16.90	16.60	16.60	16.94	16.98
Antwerp: (in bond; francs per quintal).									
Danubian	110.00	110.00	110.50	110.00	110.70	103.35	70.50	107.75	74.10
No. 2 Federal	...	105.00	103.75	103.00	7) 105.15	n. q.	n. q.	n. q.	n. q.
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	57/6	57/6	57/6	57/6	56/2 1/2	42/-	42/4 3/4	* 41/2	38/3
Liverpool and London (c.i.f., parcels, shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/5	n. q.
Russian (Azoff, Black Sea)	n. q.	n. q.	n. q.	8) 27/-	* 27/6	n. q.	14/4 3/4	n. q.	* 14/10
Canadian No. 3 Western	28/6	27/10 1/2	28/-	28/6	28/9 1/2	26/3 1/2	16/2 3/4	* 27/9	18/0 1/2
Californian malting (sh. p. 448 lb)	37/6	39/-	9) 39/-	9) 41/-	9) 40/3 1/2	41/9	23/10 3/4	* 40/6	24/8 3/4
Plata (64-65 kg. p. hl.)	10) 25/7 1/2	10) 26/3 3/4	10) 26/1 1/2	10) 26/-	10) 26/4	21/6 3/4	14/11 1/2	25/0 3/4	15/11 1/2
Persian (Iraquian)	26/1 1/2	26/4 1/2	9) 26/7 1/2	9) 26/4 1/2	9) 26/7 3/4	11) 21/4	14/7 1/4	23/11	15/4 1/4
Groningen *a*): Home-grown, winter (fl p.q.)	7 12	7.32	7.30	7.25	7.39	7.61	4.65	7.68	4.91
Oats.									
Braila: Good quality (lei p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	303	* 274	* 294
Winnipeg: No. 2 White (cents per 34 lb.)	47 7/8	47 3/4	53 1/8	54 1/2	54	45 3/8	31 3/4	52 7/8	34 3/8
Chicago: No. 2 White (cents per 32 lb.)	33 1/4	33 1/8	33 1/8	33 1/4	32 7/8	46 7/8	31	49 3/4	32 1/4
Buenos Aires *b*): Current quality (paper pesos p. quintal)	6.05	6.32	6.35	6.25	6.26	5.39	n. q.	6.25	* 6.38
Berlin: Home-grown (free at Brandenburg stations; Rm p. quint. 4)	16 50	16.50	16.30	16.30	16.30	16.20	16.20	16.77	16.79
Paris. Home-grown, black and other (delivery regional depots; frs. p. quintal)	126.90	125.15	122.00	122.75	127.00	119.85	56.76	115.80	66.40
London (Mark Lane): Home-grown white (sh. p. 356 lb, on farm)	26/9	27/3	27/6	27/6	27/4 3/4	21/4 1/8	18/6	23/9 3/4	18/7 1/8
Liverpool and London (c.i.f. parcels; shipping current month; sh. p. 320 lb.):									
Canadian, No. 2 Western (Atlantic)	n. q.	n. q.	29/1 1/2	29/-	29/1 1/2	* 22/10	18/1 3/4	23/4 1/8	18/9
Plata (f. a. q.)	10) 16/7 1/2	10) 16/9	10) 16/10 1/2	10) 16/9	10) 16/10 3/4	10) 14/1 3/4	10) 13/2 3/4	16/3 3/4	14/5
Milan (*c*) (lire p. quintal):									
Home-grown	101.50	101.50	101.50	101.50	101.50	94.50	98.00	99.60	* 97.10
Foreign	98.00	98.00	98.00	98.00	98.00	95.00	93.50	100.45	92.60
Maize.									
Braila: Average quality (lei p. quintal)	330	325	320	320	325	245	212	* 264	243
Chicago: No. 3 Yellow (cents p. 56 lb.)	54	56	58	64 1/2	12) 66	108 3/8	62 7/8	103 3/8	72 3/8
Buenos Aires (*b*): Yellow Plata (paper pesos p. quintal)	7 55	7.62	7.70	7.27	7.18	5.40	4.40	5.85	4.51
Antwerp (in bond; francs p. quintal):									
Yellow Plata	98.00	98.50	97.00	95.25	97.85	72.30	53.70	78.65	56.75
Cinquantino (Argentine "Cuarentino")	102.00	102.50	102.50	106.00	104.35	81.25	57.90	83.10	60.45
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):									
Danubian	n. q.	n. q.	n. q.	n. q.	n. q.	n. 23/1	* 16/3	* 23/5	* 16/11
Yellow Plata	28/1 1/2	28/3	28/7 1/2	27/7 1/2	27/7 3/4	20/5 3/4	15/6 1/4	22/4	16/0 1/8
No. 2 White flat African	27/3	27/7 1/2	28/3	8) 27/-	* 27/3 3/4	n. q.	* 16/5 1/4	n. q.	* 17/-
Milan (*c*): «Alto Milanese» (lire p. quint.) 5)	86.00	86.00	82.00	82.00	82.00	84.00	83.90	85.55	81.75

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats, August-July; maize, May-April. — 2) Monopoly price, paid to producers, for delivery Prague; see *Crop Report* Aug. 1936, p. 609. — 3) From August 1936, delivered barley only quoted. — 4) Fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, No. 2, p. 57, and *Crop Report* Aug. 1936, p. 609, and July 1937, p. 571. — 5) As from Oct. 1936: maximum fixed price for yellow and other except white home-grown maize; Oct.-Dec. 1936, free at Milan station, subsequently, free at producer's station. — 6) 15 Oct: 53 1/2. — 7) 15 Oct (revised): 103,00. — 8) Afloat. — 9) Shipping Nov.-Dec. — 10) New crop, shipping Jan.-Feb. — 11) Shipping Dec. — 12) 15 Oct. (revised): 63 5/8.

DESCRIPTION	12 Nov 1937	5 Nov 1937	29 Oct 1937	22 Oct 1937	Average				
					Oct 1937	Nov 1936	Nov 1935	Commercial Season 1)	
								1936	1935
Rice (milled).									
Valencia (a) No 3 Belloch (pesetas p quintal)	n q	n q	n q	n q	n q	n q	56 50	* 57 30	56 60
Milan (b) (lire p quintal)									
Vialone, oiled 2)	n q	n q	n q	n q	n q	160 00	192 10	177 30	159 20
Maratelli oiled 2)	183 50	183 50	183 50	183 50	183 50	140 00	161 10	155 05	136 60
Originario, white 2)	154 00	155 00	156 50	156 50	156 50	121 00	132 60	125 65	121 75
Rangoon (rupees and annas p 7500 lb)									
No 2 Burma	273-8	272-8	286-0	277-8	284-1	251-4	270-0	264- 6	253-8
Small mills specials	246-8	245-0	258-8	250-0	256-10	228 12	242-2	223- 5	227-4
Big mills specials	245-0	250-0	260-0	250-0	255-8	222-2	235-10	214-12	219-9
Saigon (Indo chinese piastres p quintal)									
No 1 Round white 25 % brokens	8 69	8 45	8 95	9 28	9 59	6 46	4 58	4 96	4 18
No 2 Japan 40 % brokens	8 53	8 28	8 78	9 11	9 36	6 30	4 28	4 74	3 96
Marseilles (a) No 1 Saigon (c i f frs p quintal)	118 00	117 00	125 00	124 00	128 75	80 00	67 25	63 65	54 80
London (a) (c i f shillings p cwt)									
No 3 Spanish Belloch oiled	n q	n q	n q	n q	n q	n q	12 3	* 10/4½	* 12/7
No 6 Italian good oiled	17 6	17 6	17 6	17 6	* 17 6	n q	n q	n. q	* 14/0⅛
American Blue Rose extra fancy	15/4½	15 9	16 6	16 6	15/10¾	17 7½	16 8¼	18 4¼	* 15/5¾
No 2 Rangoon or Bassein (Burma) 3)	6) 9 3	6) 9 4⅛	10 1½	10 -	10/1¾	6) 8/	6) 7/4¾	7/9¾	7/8
No 1 Saigon	7) 8 4½	7) 8 6	9 3	9 9	9 9¼	7) 8/3¾	7) 7 8¼	8/0¼	7/5¼
Siam Super white 3)	6) 9 1½	6) 9 6	11 7½	11 9	11 3	6) 9/1¾	6) 8 5½	9 0½	9/2¾
Tokyo Chumai (brown Japanese average quality yen p koku)					8)	29 65	30 16	30 70	29 87
Linseed.									
Buenos Aires (a) Current quality (paper pesos p quintal)	15 45	15 85	16 55	16 70	16 51	14 00	12 59	14 34	12 28
Bombay Bold (rupees p cwt)	7 12 6	7 13-0	7-15 0	8 2-0	9) 8-2-6	* 7-2 3	6-12 7	7-6-7	6-10-8
Antwerp Plata (in bond frs p quint)	191 00	191 50	194 50	196 00	193 50	160 35	144 00	162 25	127 55
London c i f £ p long ton									
Plata (delivery Hull)	12-13-9	13 2-6	13-10 0	13-15-0	13-12 6	11-4-4	9 19-6	11- 6-4	9-13-2
Bombay Bold	15-5 0	15 7-6	15 12 6	15 15 0	15-16-6	13-12-10	12-14 3	13-12-1	12- 5-5
Duluth No 1 Northern (futures cents p 56 lb)	10) 198	10) 190⅛	10) 197	10) 202½	10) 202½	10) 204½	10) 172	191	172¼
Cottonseed.								1936-37	1935-36
Alexandria (a) (piastres p ardeb)									
Upper Egypt	50 7	52 3	52 5	53 8	53 9	74 5	61 4	77 8	69 7
Sakellaridis	46 8	48 1	48 7	49 9	50 0	68 8	57 3	72 6	* 64 0
London Sakellaridis (c i f delivery Hull £ p long ton 4))	5-15-0	n 5 17-6	n 5 18 9	n 5 15 0	6 0-6	n 7 8 5	n 5-17 7	7-18-8	n 6-13-7
Cotton.									
New Orleans Middling (cents p lb)	8 14	7 85	8 22	8 38	8 21	12 18	11 97	12 78	11 64
New York Middling (cents p lb)	8 13	7 89	8 32	8 49	8 39	12 22	11 99	12 91	11 74
Bombay (rupees p 784 lb)									
Broach f g (futures)	11) 163 12	11) 154-12	11) 160-8	11) 165-0	11) 164-2	11) 217-11	11) 222 10	224-14	210- 4
Broach, f g (spot)	n q	n q	n q	n q	n q	n q	237-8	* 2[illegible]8- 4	* 219- 0
Oomra fine (spot)	n q	n q	n q	n q	n q	203 3	215-12	* 214-14	198-12
Alexandria (a) (talaris p kantar)									
Sakellaridis f g f	14 95	15 30	15 05	14 95	14 80	19 47	17 43	19 22	16 11
Ashmuni f g f	9 80	9 75	10 05	10 35	10 24	13 09	13 87	15 19	13 61
Bremen Middling (U S cents p lb)	9 81	9 54	10 13	10 32	10 17	14 29	14 39	15 01	13 88
M g Broach f g (pence p lb)	n 4 45	n 4 15	n 4 35	n 4 45	n 4 75	n 5 52	n 6 62	n. 5 78	n 5 86
Le Havre Middling (Gulf frs p 50 kg)	347 50	337 00	361 50	363 00	371 80	357 35	* 252 75	366 60	240 00
Liverpool (pence per lb)									
Middling, fair 5)	5 43	5 40	5 63	5 69	5 67	n 7 94	n 7 62	n. 8 26	n 7 58
Middling	4 63	4 55	4 83	4 89	4 84	6 78	6 61	7 11	6 53
São Paulo, g f	4 88	5 80	5 03	5 09	5 02	6 89	6 95	7 21	6 81
Broach good staple, f g	n 3 78	n 3 65	n 3 83	n 3 97	n 3 87	n 5 46	5 91	n 5 71	5 43
C P Oomra superfine	4 08	3 95	4 13	4 27	4 17	5 64	6 04	5 85	5 61
Egyptian Sakellaridis f g f	n 8 41	n 8 24	n 8 52	n 8 45	8 29	11 45	9 76	10 79	9 18
Upper Egyptian, f g f	6 19	6 01	6 23	6 37	6 31	7 40	7 45	8 46	7 49

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* Indicates that the product was not quoted during part of the period under review. — n q = *not quoted* — n = *nominal*. — *a*) Thursday prices — *b*) Saturday prices

1) Cottonseed Sept Aug, cotton Aug July — 2) Producers' prices including sacks f o r from 22 Oct 1936 to 20 Feb 1937 and from 1st Oct 1937, during the intermediate period, prices free at wholesalers stores See also *Crop Report*, Oct 1937, p 861 — 3) As from June 1936, "London Standard" — 4) Spot prices delivery London as from 15 Jan 1937 — 5) Commencing August 1937 the quotations are based on the official classification "Universal Standards" of 1935 instead of that of 1923, this refers to best quality "Super good middling" — 6) Shipping Jan Feb — 7) Shipping Feb March — 8) 15 Oct 33,10, 8 Oct 33,30, 1 Oct 32,60, Sept average 33 18 — 9) Revised prices 1 Oct and 24 Sept 8-3-6 Sept average 8-3-7 — 10) December futures — 11) April May futures

DESCRIPTION	12 Nov 1937	5 Nov 1937	29 Oct 1937	22 Oct 1937	Average				
					Oct 1937	Nov 1936	Nov 1935	Commercial Season	
								1936	1935
Bacon.									
London Provision Exchange (*a*) (shillings, p cwt)									
English, No 1, lean sizable	91 -	91/-	91 -	91 -	96/7	89/-	83/1	91/9	89/11
Danish, No 1 sizable	90/-	90/-	90 -	90 -	96/-	90/	85/7	93/8	88/6
Irish, No 1, sizable	88/-	87/6	87/-	87/-	92/1	88/1	82/4	91/10	88 8
Lithuanian, No 1, sizable	83/-	83/-	83 -	83/-	89/2	82/9	78/5	84/10	82/1
Dutch, No 1, sizable	86/-	86/-	86 -	86/-	92/5	86/-	81/2	89/7	85/4
Polish, No 1, sizable	83/-	83/-	83/-	83/-	89/2	83/-	76/5	84/9	80/-
Swedish, No 1, sizable	86/-	86/-	86/-	86/-	92 5	86/-	81/2	89/5	85/2
Canadian, No 1, sizable	83/-	83/-	83/-	83 -	89/2	80/-	75/-	84/-	79/3
Butter.									
Copenhagen (*b*) Danish (crs p quint)	276 00	296 00	277 00	272 00	264 75	214 50	220 50	207 15	192 30
Leeuwarden, Commission for butter quotations (*b*) Dutch (cents p kg) 1)	104	113	108	102	98 3/8	70 1/4	58 3/4	57 5/8	48 7/8
Antwerp (frs p kg)	25 50	26 75	24 45	24 85	24 54	21 05	19 15	19.00	17.90
Germany (*c*)(fixed prices, Rm p 50 kg) 2)									
With quality mark	130 00	130.00	130.00	130 00	130 00	130 00	130 00	130.00	130.00
Creamery	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123.00	123 00
London (*d*) English creamery, finest quality (shillings p cwt)	177/4	177/4	168 -	168/-	162/2	131/10	130 8	129/1	119/6
London Provision Exchange (*a*) (shillings p cwt)									
Danish creamery unsalted	151 -	159 6	151 -	148 -	144 7	122 2	124/5	119/1	112/9
Estonian, unsalted	n q	150/-	n q	135/6	* 134/-	n q	n q	* 105/7	* 81/11
Latvian, unsalted	n q	n q	n q	n q	n q	n q	n q	n q	* 86/1
Dutch creamery, unsalted	139 6	150/6	146 6	138/	134 7	99 9	108 2	98/1	93/4
Argentine, finest, unsalted	n q	n q	n q	n q	n q	n q	n q	* 97/1	* 82/10
Siberian, salted	n q	148 -	n q	n q	n q	98 9	* 99/3	* 100/2	* 90/7
Australian, finest, salted	135 6	150 6	151 -	138/6	136/4	107/3	101/2	99/10	89 7
New Zealand, finest, salted	137/-	150 6	151 -	139/-	136/6	108/6	101/11	100/8	91/1
Cheese.									
Milan (lire p quintal)									
Parmigiano Reggiano, 1st quality, production 1935 3)	1 280 00	1 050 00	1,050 00	1 050 00	1 050 00	800 00	739 00	* 870 60	775 45
Parmigiano Reggiano, 1st quality, production 1936 3)	1,150 00	900 00	900 00	900 00	900,00	850 00	690 00	896 70	734 25
Gorgonzola green, mature, choice		650 00	650.00	650 00	650 00	650 00	544 00	569.80	508.90
Rome Roman Pecorino choice 4) (lire p q)	950,00	950 00	950 00	950 00	950 00	975 00	1 162 50	1,121.90	865.50
Alkmaar Edam 40 + (40 % butterfat, with the country s cheese mark) factory cheese small (florins p 50 kg)	22 75	21 75	21 25	22 50	23 00	16 06	16 90	17.56	14 84
Gouda (*e*) Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made 1st qual (florins p 50 kg)	29 50	29 50	30 00	31 00	30 70	22 50	24 70	21.49	19.75
Kempten (*c*) (Rm p 50 kg)									
Soft cheese, green 20 % butterfat	29 00	29 00	29 00	29 00	29 00	29 00	26.00	26.50	26 00
Emmenthal from the Allgäu, whole milk cheese, 1st quality	80 00	80 00	80 00	80 00	80 00	80.00	80 00	80 00	77.00
London Provision Exchange (*a*) (shillings p cwt)									
English Cheddar, finest farmers	93 -	93 -	93 -	93 -	91/10	84/9	73	* 80/-	* 77/8
English Cheshire, Nat Mark Selected	123/8	123 8	121/4	121/4	105 11	90/1	90/6	78/3	80/5
Italian Gorgonzola	109/8	109/8	109/8	108 6	105/11	105/7	109/8	* 106/7	* 102/2
Dutch Edam, 40 + (*d*)	65/-	66/6	66/-	67/6	67/10	50/4	53/10	48/7	44/4
Canadian, finest white (*d*)	73/6	73 6	72/-	70/6	70/10	72/4	57 10	66/4	60/3
New Zealand, finest white	73/-	74/-	72/6	69/9	73/2	71/11	52/2	60/8	48/9

* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a*) Average prices Thursdays, and Friday mornings — *b*) Thursday prices — *c*) Wednesday prices — *d*) Average prices for the week — *e*) Saturday prices

1) Home prices are increased by a consumption tax of 50 cents per kg from 19 Sept to 2 Oct, of 45 cents from 3 to 16 Oct, f 40 cents from 17 Oct to 6 Nov, of 30 cents from 7 to 11 Nov, and of 40 cents subsequently — 2) See *Crop Report*, April 934, p 306 — 3) Prices of 1935 cheese are compared with the yearly and monthly averages of cheese made in 1933 and 934, prices of 1936 cheese with 1934 and 1935 The yearly averages refer to the periods from Sept to August As from 6 Oct 1936, naximum prices, between wholesaler and retailer, for choicest quality, packing included Up to the end of February 1937 and commencing July 1937 these prices were f o r sellers stations, during the intermediate period, free at retailers' shops —) Export quality until the end of June 1937, subsequently Home consumption quality

Description	12 Nov. 1937	5 Nov. 1937	29 Oct. 1937	22 Oct. 1937	Average				
					Oct. 1937	Nov. 1936	Nov. 1935	Commercial Season 1)	
								1936	1935
Eggs.									
Antwerp, auction: Belgian, average qual. (frs p. 100)	78.00	80.00	78.00	76.00	77.60	70.50	73.50	50.80	48.35
Denmark (*a*): Danish for export (crs. per quintal)	160.00	176.00	176.00	166.00	162.00	160.50	176.00	108.20	106.75
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p 100):									
Fixed price for export into Germany.	...	...	...	...	...	5.41	4.80	3.83	3.75
Price for other destinations	...	...	...	...	...	5.15	4.78	3.46	2.97
Warsaw (*b*): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	151.20	140.40	140.40	140.40	143.40	136.37	134.71	100.13	104.43
Berlin (*c*): German, big, new laid (Rm. p. 100):									
marked « G I S », 65 gr. each	11.25	11.25	11.25	11.25	11.25	12.00	11.50	10.77	10.57
marked « G I B », 55/60 gr. each	10.25	10.25	10.25	10.25	10.25	10.00	10.00	9.26	9.34
London Egg Exchange (*d*) (sh. p. 120):									
English, National Mark, specials	25/-	24/6	23/6	22/-	22/4½	22/9	24/1½	16/9	15/9
Belgian, 15½ lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	14/-	* 13/9	* 10/8¾	* 11/3½
Danish, 18 lb p 120	16/6	16/6	n. q.	15/3	* 15/4	16/6¾	17/6¾	12/8½	12/5
Northern Irish, 18 lb. p 120 2)	7) 24/3	7) 23/6	n. q.	20/9	* 20/9	n. q.	23/6	* 14/8¼	15/1½
Dutch, all brown, 67/69 grams each	17/6	17/1½	16/9	16/7½	16/6	17/9	* 18/6½	13/10	13/2½
Polish, 51/52 grams each	8/3	8/4½	n. q.	8/3	8/5½	8/7	8/6	* 7/2½	* 7/1¼
Chinese, violet	9/1½	9/3	9/3	9/4½	* 9/6¾	9/6	9/2½	* 9/2½	* 8/10½
Australian, 16 lb. p. 120	12/9	12/10½	12/10½	13/-	13/5½	13/7	12/3¾	* 12/8¾	* 11/2½
Ocean freight rates 3)									
Shipments of wheat and maize.								1936-37	1935-36
Rates in shillings per quarter:									
Churchill to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/10½	n. q.
Montreal to United Kingdom	4/3	4/3	4/3	4/3	4/2½	2/4	2/-	* 2/6	* 2/1
St. John to Liverpool 4)	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/9	* 2/0½	* 2/10½	* 2/1½
New York to Liverpool 4)	4/-	3/6	3/6	3/6	3/7½	n. q.	1/6	n. q.	* 1/6
Northern Range to U K /Continent	4/-	4/-	4/6	4/6	4/9	* 2/6	2/-	* 2/9	1/10
Gulf to United Kingdom 4)	5/6	5/9	6/-	6/-	5/9	n. q.	2/6	n. q.	* 2/6
Rates in shillings per long ton:									
Danube to Antwerp/Hamburg	n. q.	n. q.	n. 29/-	n. 29/-	n. 29/9	21/-	16/3	* 20/4	* 15/7
Black Sea to Antwerp/Hamburg	24/9	24/9	24/9	24/3	24/5	16/10½	10/10	* 16/10	* 10/2
North Pacific to United Kingdom	n. 45/-	n. 45/-	n. 47/-	n. 47/-	46/4	27/6	21/-	* 29/9	* 20/-
La Plata « Down River » 5)/Bahia Blanca to U. K /Continent	n. q.	n. q.	n. 33/6	n. 33/3	n. 33/6	20/-	16/6	23/11	16/6
La Plata « Up River » 6)/Necochea to U K /Continent	34/6	34/6	34/6	34/3	34/3¾	20/11	17/6	25/2	17/8
South Australia to U K /Continent (in bulk)	n. 47/-	n. 47/-	n. 47/-	n. 46/3	46/2	27/10	n. 25/6	34/1	25/-
Western Australia to U. K /Continent (in bulk)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. 24/6	34/9½	23/11
New South Wales to U K /Continent (in bulk)	n. q.	n. q.	n. q.	n. q.	* n. 41/6	n. 30/3	24/6	34/11	23/11
Shipments of rice.								1936	1935
Rates in shillings per long ton:									
Saigon to Europe	51/3	51/3	51/-	51/-	49/5	29/3	26/-	26/3	* 22/7
Burma to U. K /Continent	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 24/-	* 21/8

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* Indicates that the product, or the ocean freight, was not quoted during part of the period under review. — n. q = *not quoted.* — n. = *nominal.* — *a*) Average prices for weeks commencing on Fridays indicated — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday

1) Shipments of wheat and maize: Aug.-July. — 2) From Feb. 1936 "Extra special" quality. — 3) Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during a period often extending back several months, to operate during the weeks specified. — 4) Rates for parcels by liners. — 5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 7) "Specials's".

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR 1)

NATIONAL CURRENCIES	Parity (1)	Actual Exchange Rates				Percentage deviation from parity with U. S. dollar: premium (+) or discount (—)			
		12 Nov 1937	5 Nov. 1937	29 Oct 1937	22 Oct. 1937	12 Nov 1937	5 Nov. 1937	29 Oct. 1937	22 Oct. 1937
Germany: reichsmark	40.332	40.333	40.306	40.164	40.160	0.0	— 0.1	— 0.4	— 0.4
Argentina: paper peso	71.959	n. 33.241	n. 33.286	n. 33.080	n. 33.008	— 53.8	— 53.7	— 54.0	— 54.1
Belgium: belga	2) 23.542	16.971	17.017	16.899	16.856	— 27.9	— 27.7	— 28.2	— 28.4
	3) 16.950					+ 0.1	+ 0.4	— 0.3	— 0.6
Canada: dollar	100.000	100.049	100.052	100.036	100.011	0.0	+ 0.1	0.0	0.0
Denmark: crown	45.374	22.252	22.297	22.161	22.101	— 51.0	— 50.9	— 51.9	— 51.3
Spain: peseta	32.669	n. 6.244	n. 6.244	n. 6.212	n. 6.319	— 80.9	— 80.9	— 81.0	— 80.7
France: franc 4)	6.633	3.387	3.394	3.369	3.385	— 48.9	— 48.8	— 49.2	— 49.0
Great Britain: £ sterling 5)	8.2397	4.9857	4.9950	4.9647	4.9515	— 39.5	— 39.4	— 39.7	— 39.9
Hungary: pengö	29.612	n. 19.837	n. 19.747	n. 19.742	n. 19.742	— 33.0	— 33.3	— 33.3	— 33.3
India: rupee	61.798	37.644	37.694	37.456	37.384	— 39.1	— 39.0	— 39.4	— 39.5
Italy: lira	2) 8.911	5.262	5.264	5.260	5.260	— 40.9	— 40.9	— 41.0	— 41.0
	6) 5.263					0.0	0.0	— 0.1	— 0.1
Japan: yen	84.396	29.037	29.070	28.894	28.814	— 65.6	— 65.6	— 65.8	— 65.9
Netherlands: florin	68.057	55.326	55.272	55.287	55.283	— 18.7	— 18.8	— 18.8	— 18.8
Poland: zloty	18.994	18.917	18.892	18.892	18.887	— 0.4	— 0.5	— 0.5	— 0.6
Romania: leu	1.013	n. 0.730	n. 0.729	n. 0.728	n. 0.728	— 27.9	— 28.0	— 28.1	— 28.1
Sweden: crown	45.374	25.703	25.750	25.589	25.525	— 43.4	— 43.2	— 43.6	— 43.7
Switzerland: franc	32.669	23.079	23.210	23.093	23.023	— 29.4	— 29.0	— 29.3	— 29.5
Czechoslovakia: crown	2) 5.016	3.510	3.500	3.501	3.500	— 30.0	— 30.2	— 30.2	— 30.2
	7) 3.512					— 0.1	— 0.3	— 0.3	— 0.3

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1) Parities and current rates are both expressed in U. S. cents per unit of the foreign currency. (The £ sterling is expressed in dollars). The dollar contains 0.8886706 grams of fine gold, i. e. 40.9 % less than formerly. — 2) Former parity. — 3) New parity as from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs, the actual rates vary only slightly from this. — 5) Quotations for the Egyptian pound are omitted, its relationship with the £ sterling being fixed (97 ½ piastres = 1 £ sterling). — 6) New parity as from 5 Oct. 1936. — 7) New parity as from 10 Oct. 1936.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are given in the following pages. Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced as originally received, without being formally united.

As supplementary information the following comparative summary table is given:

COUNTRIES	Percentage variations in the index-numbers of prices of			
	agricultural products	all products	agricultural products	all products
	October 1937 in comparison with			
	September 1937		September 1936	
Germany (products sold by farmers)	0.0	—	+ 2.0	—
Germany (wholesale prices)	— 0.4	— 0.3	+ 1.2	+ 1.5
England and Wales	— 5.6	— 2.2	+ 3.9	+ 10.2
Argentina	+ 2.8	—	+ 23.5	—
Canada	+ 0.3	— 0.5	+ 13.2	+ 9.7
United States: Bureau of Agric. Economics	+ 5.1	—	— 7.4	—
United-States: Bureau of Labor	— 6.4	— 2.3	— 4.3	+ 4.8
Finland	+ 2.2	0.0	+ 12.3	+ 11.8
Hungary	— 3.6	— 3.1	+ 3.9	+ 2.2
New Zealand	+ 2.0	—	+ 19.4	—
Netherlands	— 1.5	+ 0.1	+ 18.5	+ 12.9
Poland	— 3.5	— 2.0	+ 10.0	+ 5.2
Sweden	+ 0.8	—	+ 5.6	—
Yugoslavia: vegetable production	+ 6.8	+ 2.4	+ 32.7	+ 16.1
Yugoslavia: animal production	— 0.3		+ 3.6	
	September 1937 in comparison with			
	August 1937		August 1936	
Belgium	+ 1.8	—	+ 15.0	—
Irish Free State	— 0.6	—	+ 15.8	—
Irish Free State 1)	— 3.3	—	+ 15.9	—
Lithuania	0.0	0.0	+ 14.6	+ 10.6

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1) August 1937 in comparison with July 1937 and August 1936 respectively.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	Oct 1937	Sept 1937	August 1937	July 1937	June 1937	May 1937	Oct 1936	Oct 1935	Year	
Germany 2)									1936-37 6)	1935-36 6)
(Statistisches Reichsamt) Average for corresponding months 1909-10/1913-14 = 100										
Cereals	109	107	110	103	102	101	102	101	105	104
Edible potatoes	108	110	178	137	112	122	108	111	115	119
Plant products	108	108	115	117	103	107	104	105	107	107
Meat animals	92	93	94	95	97	96	92	95	94	96
Dairy and poultry products	100	104	108	113	117	113	100	100	106	106
Livestock and livestock products	94	96	99	101	104	102	95	96	98	99
Total agricultural products	100	100	103	104	104	103	98	100	100	101
Germany 3)									1936	1935
(Statistisches Reichsamt) 1913 = 100										
Foodstuffs of plant origin	114.4	114.5	116.9	118.2	115.7	115.5	110.6	111.0	114.1	113.4
Livestock	88.7	89.9	90.7	88.9	87.4	86.2	89.4	91.5	89.4	84.2
Livestock products	111.7	111.9	111.9	107.8	107.8	107.8	111.6	110.2	109.4	107.1
Feedingstuffs	104.6	104.4	104.6	107.0	108.3	107.7	103.8	103.9	107.5	104.6
Total agricultural products	105.0	105.4	106.4	105.7	104.6	104.1	103.8	104.2	104.9	102.2
Fertilizers	54.5	54.6	54.0	52.9	55.8	57.1	65.3	67.0	66.8	66.8
Agricultural dead stock	112.7	112.7	112.7	112.7	112.7	112.7	112.0	111.1	111.6	111.1
Finished manufactures (Konsumgüter)	135.6	134.9	133.6	133.3	132.9	132.5	129.4	123.9	127.3	124.0
Wholesale products in general	105.9	106.2	106.7	106.4	106.1	105.9	104.3	102.8	104.1	101.8
England and Wales										
(Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100										
Agricultural products 4)	134	142	136	134	134	136	129	120	126	123
Feeding stuffs	120	114	119	122	119	119	101	86	93	87
Fertilizers	92	92	92	91	91	91	87	87	89	88
Wholesale products in general 5)	118.5	121.2	122.5	124.2	122.7	124.4	107.5	100.9	104.4	99.5
Argentina										
(Banco Central de la República Argentina) 1926 = 100										
Cereals and linseed	112.8	103.8	101.6	103.2	97.7	102.4	88.0	72.1	82.6	67.2
Meat	104.4	103.9	97.3	95.7	92.6	86.3	94.0	90.9	91.0	84.0
Hides and skins	108.9	120.3	122.7	125.8	118.1	123.9	90.5	91.9	91.0	80.5
Wool	138.8	151.4	147.1	143.3	144.9	153.9	110.7	84.5	107.6	74.6
Dairy products	91.9	123.7	110.2	98.2	91.7	85.8	86.0	113.4	85.5	88.8
Forest products	98.8	98.8	100.2	100.2	98.7	97.8	95.2	94.9	96.3	92.2
Total agricultural products	111.9	108.9	106.3	107.0	102.4	105.7	90.6	78.7	86.6	72.1

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1) For an explanation of the method of calculating the index numbers reference should be made to the Institute's publication *Index numbers of Prices of Agricultural Products and other Price indices of interest to the farmer* (Rome 1930) and to the *Crop Report*, January 1932 pages 77 to 79 July 1932 page 502 March 1934 page 231 December 1934 page 916 — 2) Index-numbers of products sold by farmers — 3) Index numbers of wholesale prices — 4) Revised index numbers due to the Wheat Act payments as from August 1932 and the Cattle Emergency Act payments as from September 1934 — 5) Calculated by the *Statist*, reduced to base-year 1913 = 100 — 6) Agricultural year: 1 July to 30 June

Description	Oct	Sept	August	July	June	May	Oct	Oct	Year	
	1937	1937	1937	1937	1937	1937	1936	1935	1936	1935
Belgium (Belgische Boerenbond Boerenbond belge) Average of corresponding months 1909 14 = 100										
Field products		588	579	567	543	576	495	484	508	438
Livestock products		649	637	637	604	559	639	608	576	532
Total agricultural products		630	619	615	585	565	600	569	555	502
Rent		650	650	650	650	645	620	565	605	551
Agricultural wages		855	855	855	855	850	796	740	778	737
Fertilizers		451	452	447	433	433	435	402	427	394
Feedingstuffs		609	604	596	601	573	571	474	513	444
Total production expenses (included those not specified)		739	738	736	735	727	706	642	689	630
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100										
Field products (grain etc)	86.3	84.8	84.6	97.7	85.1	89.0	76.4	59.4	65.8	57.1
Livestock and livestock products	86.5	88.4	85.5	83.9	81.4	85.7	76.2	76.7	75.3	73.9
Total Canadian farm products	86.4	86.1	84.9	92.5	83.7	87.8	76.3	65.9	69.4	63.4
Fertilizers	74.5	74.5	74.5	74.5	74.5	74.5	74.3	75.8	74.5	75.8
Consumers goods (other than foodstuffs beverages and tobacco)	78.9	79.0	79.1	79.0	78.5	78.2	75.4	75.3	75.5	75.7
Wholesale products in general	84.7	85.0	85.6	87.5	84.6	85.1	77.1	73.1	74.6	72.1
Irish Free State (Department of Industry and Commerce) Average 1911 1913 = 100										
Agricultural products in general		106.3	106.9	110.5	107.9	106.5	98.1	86.3	90.6	83.0
United States (Bureau of Agricultural Economics) Average 1909 10 to 1913 14 = 100										
Cereals	93	111	119	139	139	149	128	101	108	103
Cotton and cottonseed	67	74	90	106	107	112	104	94	100	101
Fruits	99	121	123	145	157	152	104	82	100	91
Truck crops (market garden crops)	130	117	104	96	124	139	131	120	113	127
Meat animals	136	144	151	144	137	133	120	125	121	117
Dairy products	128	123	119	116	113	116	125	104	119	108
Chickens and eggs	127	119	109	102	95	96	127	132	115	117
Miscellaneous	113	115	128	113	119	133	133	103	122	97
Total agricultural products	112	118	123	125	124	128	121	109	114	108
Commodities purchased 1)	113	130	132	133	133	134	127	123	124	125
Agricultural wages 1)	126	—	—	123	—	—	110	102	106	95
United States (Bureau of Labor) 1926 = 100										
Cereals	77.0	91.9	92.0	105.2	105.7	113.9	102.1	86.4	88.1	82.4
Livestock and poultry	98.5	106.7	108.2	105.0	98.3	95.9	81.2	86.6	84.8	84.9
Other farm products	70.1	71.2	71.4	75.1	77.4	79.0	80.2	70.3	76.0	73.4
Total agricultural products	80.4	85.9	86.4	89.3	88.5	89.8	84.0	78.2	80.9	78.7
Agricultural implements	94.2	94.2	94.2	94.2	94.1	93.8	93.9	93.7	94.1	93.7
Fertilizer materials	72.5	71.8	71.7	71.3	70.5	70.6	67.4	67.2	65.9	66.3
Mixed fertilizers	74.9	74.8	74.8	74.2	72.3	72.2	69.7	67.9	68.3	70.6
Cattle feed	83.6	81.2	82.9	116.5	116.9	139.9	111.8	71.6	94.0	88.4
Non agricultural commodities	86.4	87.6	87.6	87.5	86.8	86.7	80.9	80.9	80.7	80.2
Wholesale products in general	85.4	87.4	87.5	87.9	87.2	87.4	81.5	80.5	80.8	80.0

1) 1910-1914 = 100

Description	Oct. 1937	Sept. 1937	August 1937	July 1937	June 1937	May 1937	Oct 1936	Oct 1935	Year	
									1936	1935
Finland										
(Central Bureau of Statistics) 1926 = 100.										
Cereals	108	103	101	106	112	116	100	84	91	80
Potatoes	59	69	77	83	59	65	53	59	74	75
Fodder	82	70	67	67	70	74	67	60	64	62
Meat	80	86	89	87	86	83	74	71	80	75
Dairy products	100	95	92	85	81	83	83	90	82	83
Total agricultural products	91	89	88	87	86	87	81	79	79	76
Wholesale products in general	104	104	103	103	103	104	93	92	92	90
Hungary										
(Central Bureau of Statistics) 1913 = 100										
Agricultural and livestock products	80	83	80	80	78	79	77	87	—	—
Wholesale products in general	93	96	94	94	94	95	91	95	—	—
Lithuania										
(Lietuvos Bankas) 1926 29 = 100.										
Cereals	...	44	46	50	49	48	38	36	37	39
Cattle, fowls	...	51	51	50	50	51	46	29	40	30
Leather, hides, wool	...	61	60	59	59	62	57	40	50	38
Meat, dairy products and eggs	...	44	42	42	41	42	41	34	38	35
Total agricultural products	...	47	47	48	47	48	42	34	39	35
Wholesale products in general	...	52	52	52	52	52	47	44	45	45
New Zealand										
(Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	122.4	119.1	113.6	113.9	112.6	108.3	109.8	111.4	105.6	91.3
Meat	161.7	159.3	160.4	164.3	163.4	164.5	159.4	150.2	161.5	157.6
Wool	175.3	175.3	175.3	169.7	180.9	190.8	105.6	92.0	111.5	82.2
Other pastoral products	165.0	151.0	167.2	151.6	153.1	151.8	132.7	112.5	123.6	96.7
All pastoral and dairy products	147.5	144.4	143.4	142.5	144.1	144.5	124.5	117.6	122.9	107.2
Field products	136.5	139.1	139.8	129.3	130.6	138.4	118.1	125.6	124.2	126.0
Total agricultural products	147.2	144.3	143.3	142.1	143.7	144.3	124.3	117.8	123.9	108.8
Norway									1936-37 1)	1935 36 1)
(Kgl. Selskap for Norges Vel) Average 1909-14 = 100.										
Cereals	173	172	175	173	172	172	149	143	154	144
Potatoes	167	171	203	227	188	134	117	139	132	165
Pork	127	129	126	123	108	103	116	118	110	109
Other meat	185	194	207	206	185	165	139	143	148	146
Dairy products	170	167	161	158	156	153	139	140	139	139
Eggs	159	142	120	109	98	96	142	132	113	102
Concentrated feedingstuffs	154	154	154	152	153	151	128	129	130	123
Maize	150	148	148	145	146	139	132	118	130	113
Fertilizers	93	89	89	90	90	90	89	83	87	82

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1) Agricultural year: 1 April-31 March.

SPECIFICATION	Oct. 1937	Sept. 1937	August 1937	July 1937	June 1937	May 1937	Oct. 1936	Oct. 1935	Year	
Netherlands (Bureau of Agriculture) Average 1924-25 to 1928-29 = 100									1936-37 2)	1935-36 2)
Plant products	61	63	65	64	61	62	57	53	58	50
Livestock products	65	65	66	66	63	63	53	53	57	51
Total agricultural products	64	65	66	66	62	62	54	53	57	51
Agricultural wages	68	68	68	68	68	68	68	69	68	69
Wholesale products in general 1)	77.0	76.9	77.6	77.5	76.3	76.7	4) 68.2	63.3	3) 63.8	3) 61.5
Poland (Central Bureau of Statistics) 1928 = 100									1936	1935
Raw plant products	51.0	52.5	53.1	56.9	61.6	55,8	42.6	33.7	38.1	33.9
Meat animals	43.6	46.8	46.4	47.9	42.3	41.9	39.6	40.4	38.7	35.5
Dairy products and eggs	49.5	50.8	46.8	43.4	43.8	47.0	43.9	45.5	40.4	41.2
Products directly sold by farmers	48.3	50.3	49.7	51.4	51.9	49.6	41.9	38.1	38.7	35.8
Flour and groats	52.5	54.4	55.7	54.3	60.2	57.5	48.2	36.7	41.2	36.7
Meat and lard-fat	48.8	52.3	50.7	50.2	46.7	47.6	44.2	49.2	44.3	40.8
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	79.4	71.5	79.2
Products of agricultural industries	57.4	59.2	59.1	58.5	58.9	58.6	54.4	55.0	52.2	52.0
Total agricultural products	52.8	54.7	54.3	54.9	55.4	54.0	48.0	46.5	45.4	43.8
Commodities purchased 2)	66.0	66.4	66,3	66.5	66.1	66.3	65.1	66.7	64.6	66.3
Wholesale products in general 2)	58.4	59.6	59.6	60.0	60.3	59.9	55.5	54.4	54.0	53.0
Sweden (Sveriges Allmänna Lantbrukssällskap) Average 1909-13 = 100										
Plant products	120	120	125	130	126	127	112	103	108	108
Dairy products	138	134	133	125	124	132	131	116	133	122
Meat animals	127	138	134	135	126	123	128	135	126	120
Livestock and livestock products	136	135	133	127	124	129	131	121	131	121
Total agricultural products	131	130	130	128	125	128	124	115	123	117
Feedingstuffs	141	140	139	134	133	137	137	132	133	125
Fertizers	93	93	94	93	94	94	92	97	95	95
Building materials	192	194	194	194	194	194	165	159	161	162
Machinery and implements	217	217	208	196	196	196	179	179	177	177
Sundries	130	130	131	130	131	128	114	109	112	109
Total commodities purchased	148	148	146	143	143	144	134	132	133	129
Agriculural wages	193	193	193	193	193	193	174	170	164	170
Yugoslavia (National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	85.3	79.9	74.5	71.5	69.3	69.8	64.3	81.6	69.7	68.2
Livestock products	67.0	67.2	66.1	65.5	62.0	62.7	64.7	56.2	60.0	56.6
Industrial products	82.0	80.4	78.0	76.3	75.9	76.5	71.1	68.8	69.7	66.7
Wholesale products in general.	80.0	78.1	75.3	73.7	72.1	72.6	68.9	70.0	68.4	65.9

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1) Index-numbers calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) Agricultural year: 1 July to 30 June. — 3) Calendar year. — 4) 28 September - 31 October

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for October already available.

COUNTRIES PRODUCTS AND UNITS		Exports 1937	Exports 1936	Imports 1937	Imports 1936
ROMANIA		August	August	August	August
Wheat	1000 centals	2,490	3,022	...	...
Rye	» »	925	107	...	...
Barley	» »	912	1,801	...	...
Oats	» »	0	69	...	...
Maize	» »	4	1,121	...	...
ROMANIA		Sept	Sept	Sept	Sept
Wheat	1000 centals	2,774	4,035	...	...
Rye	» »	1,140	82	..	...
Barley	» »	1,144	2,856	..	...
Oats	» »	3	57	...	...
Maize	» »	2	872	...	.
GERMANY		Oct	Oct.	Oct	Oct
Wheat	1000 centals	0	0	1,360	78
Wheat flour	» »	0	4	28	6
Rye	» »	0	0	296	10
Barley	» »	0	0	573	2
Oats	» »	0	0	67	0
Maize	» »	0	0	6,835	54
Rice	» »	66	59	567	331
Linseed	» »	0	0	330	516
Cotton	» »	0	0	704	467
Wool a)	1000 lb.	0	2	11,748	7,106
Wool b)	» »	77	18	3,763	4,597
Butter	» »	0	0	20,527	24,079
Cheese	» »	11	9	9,039	4,702
Cacao	» »	212	0	17,176	17,996
Tea	» »	49	0	983	928
Coffee	» »	0	0	31,173	31,453
ESTONIA (*see over*)					
Wheat	1000 centals		0	0	0
Wheat flour	» »	0	0	0	0
Rye	» »	0	9	118	174
Barley	» »	0	0	0	0
Oats	» »	0	0	0	0
Maize	» »	0	0	0	0
Rice	» »	0	0	4	5
Linseed	» »	0	0	0	0
Cotton	» »	2	0	14	11
Wool	1000 lb.	0	0	73	97
Butter	» »	3,188	1,433	0	0
Cheese	» »	29	42	0	0
ESTONIA (*concluded*)		Oct.	Oct	Oct	Oct.
Cacao	1000 lb.	0	0	86	79
Tea	» »	0	0	22	9
Coffee	» »	0	0	9	13
UNITED KINGDOM					
Wheat	1000 centals	70	69	9,827	9,938
Wheat flour	» »	158	222	775	619
Barley	» »	...	...	2,350	3,246
Oats	» »	..	...	34	180
Maize	» »	183	113	7,225	8,375
Rice	» »	8	18	174	138
Linseed	» »	...	...	752	490
Cotton	» »	45	47	1,683	1,438
Wool	1000 lb.	15,986	24,961	50,695	51,176
Butter	» »	1,296	858	79,084	87,074
Cheese	» »	668	683	31,460	28,120
Cacao	» »	2,619	2,363	1,133	2,165
Tea	» »	5,635	6.129	65,394	51,123
Coffee	» »	425	1,387	935	1,757
SWITZERLAND					
Wheat	1000 centals	0	0	848	967
Rye	» »	0	0	20	11
Barley	» »	0	0	376	281
Oats	» »	0	0	323	334
Maize	» »	0	0	128	174
Rice	» »	0	0	17	65
Cotton	» »	0	0	70	53
Wool	1000 lb.	11	4	489	1,016
Butter	» »	0	0	9	77
Cheese	» »	3,666	2,597	282	280
Cacao	» »	13	0	664	635
Tea	» »	2	2	154	148
Coffee	» »	0	2	1,819	1,124
BURMA					
Wheat	1000 centals	—	—	9	—
Wheat flour	» »	0	—	51	—
Barley	»	—	—	0	—
Maize	»	2	—	—	—
Rice	» »	2,857	—	2	—
Linseed	» »	—	—	—	—
Cotton	» »	38	—	—	—
Wool	1000 lb.	35	—	—	—
Butter	» »	—	—	53	—
Cheese	» »	—	—	7	—
Tea	» »	13	—	370	—
Coffee	» »	—	—	24	—

a) Wool greasy. — b) Wool scoured.

SUPPLEMENTARY INFORMATION ON PRICES

Some quotations on Friday 19 November 1937, are given in the following table. The qualities and price-units used in various markets will be found in the table ' Weekly Prices by Products " pages 961/965.

Wheat

Budapest		20.72
Winnipeg		135 $^5/_8$
Minneapolis		103 $^7/_8$
New-York		113 $^1/_2$
Buenos Aires		14.40
Hamburg: N° 1 Manitoba		15.43
» Barusso		11.96
London: Home-Grown		40/6
Liverpool and London:		
Danubian		n. q
Russian		39/9
N° 1 North Manitoba (Atlantic)	1)	53/1 $^1/_2$
N° 1 North. Manitoba (Pacific)	1)	53/1 $^1/_2$
N° 3 North. Manitoba (Pacific)	1)	44/1 $^1/_2$
Hard Winter N° 2	1)	39/-
Rosafé	2)	41/-
Karachi		40/6
Australians		40/6

Rye

Hamburg	)	10.62
Budapest		18.55
Warsaw		24.37

Barley

Warsaw		23.00
London		57/6
Liverpool and London		
Danubian		n. q.
Russian		n q
Canadian N° 3 Western		27/9
Californian		37/6
Plata	2)	26/-
Iraqian		26

Oats

Buenos Aires		6.15
Paris		125.85
London: Home Grown		26/9
Liverpool and London:		
Canadian N° 2 Western		n q
Plata	2)	16/7 $^1/_2$

Maize

Buenos Aires		7.55
Liverpool and London:		
Danubian		n. q
Yellow Plata		28/-
N° 2 African		27/10 $^1/_2$

Rice

Saigon. N° 1, 25 %		9.10
» N° 2, 40 %		8.60
Marseilles		120.00
London: N° 3 Belloch		n q
» Italian		17/6
» American Blue Rose		15/
» N° 2 Rangoon	2)	9/-
» N° 1 Saigon	3)	9/-
» Siam Super	2)	9/3

Linseed

Buenos Aires		15.75
London. Plata		12-15-0
» Bombay		15-0-0
Duluth	4)	194 $^1/_4$

Cotton

New Orleans		7.90
New York		7.84
Bombay: Broach, f. g., futures	5)	157-0
Alexandria Sakellaridis f. g. f.		15.15
» Ashmuni		9.85
Bremen Middling		9.62
» Broach f. g.	n	4.40
Le Havre		332.00
Liverpool Middling, fair		5.35
» Middling		4.55
» Sao Paulo, g. f.		4.80
» Broach, g. f.	n	3.72
» C. P. Oomras' fine		4.02
» Sakellaridis, f. g. f.	n.	8.20
» Upper Egyptian, f. g. f.		6.01

Bacon

London English		95/
Danish		92/-
Irish		89/9
Lithuanian		85/-
Dutch		88/-
Polish		85/-
Swedish		88/-
Canadian		85

Butter

Copenhagen		256.00
Antwerp		25.50
London English		168/
» Danish		143/-
» Estonian		n q.
» Latvian		n. q
» Dutch		122/-
» Argentine		n. q
» Siberian		n. q
» Australian		120/6
» New Zealand		121/-

Cheese

London: Cheddar		93/-
» Cheshire		123/8
» Gorgonzola (Italian)		109/8
» Edam 40 %		65/6
» Canadian		72/6
» New-Zealand		71/3

Eggs

Antwerp: Belgian		78.00
London. English		25/-
» Belgian		n. q
» Danish		16/9
» Northern Irish (« Specials »)		24/6
» Dutch		17/0
» Polish (52/53 gr.)		8/9
» Chinese		9/1 $^1/_2$
» Australian		13/-

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1) Shipping December. — 2) Shipping Jan Feb. — 3) Shipping Feb.-Mar. — 4) December futures. — 5) April-May futures.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

27-XI-1937.

Saturday, Spanish; Tuesday French and Italian.

They will be broadcast from Rome 2 (245.5 m.) and Rome 2 RO (25.4 m.).

The hour of broadcasts is in Central European Time, which is one hour ahead of Greenwich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = *excellent,* 2 = *good,* 3 = *average,* 4 = *bad,* 5 = *very bad; France:* 100 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *average,* 30 = *bad; Estonia, Lithuania, Poland, Romania and Sweden;* 5 = *excellent,* 4 = *good,* 3 = *average,* 2 = *bad,* 1 = *very bad; Netherlands:* 90 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *below average; Portugal:* 100 = *excellent,* 80 = *good,* 60 = *average,* 40 = *bad* 20, = *very bad; Switzerland:* 100 = *excellent,* 90 = *very good,* 75 = *good,* 60 = *fairly good,* 50 = *average,* 40 = *rather bad,* 30 = *bad,* 10 = *very bad; U. S. S. R.:* 5 = *good,* 4 = *above the average,* 3 = *average,* 2 = *below average,* 1 = *bad; Canada:* 100 = *crop condition promising a yield equivalent to the average yield of a long series of years; United States:* 100 = *crop condition which promises a normal yield; Egypt:* 100 = *from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed:* 100 = *crop condition which promises a yield equal to the average of the last ten years.*

See latest information at the end of the Crop Report

VEGETAL PRODUCTION

Wheat: world production and international trade in 1937-38.

The first official estimate of the Argentine crop published on 15 December confirms the report that the late frosts at the end of October, and even more those of November, did serious damage to wheat crops, which at mid-October still promised a very large harvest. The total production to be harvested is now forecast at 192 million bushels which is a drop of about 68 million bushels on the total estimated two months ago, on the basis of the acreage of the crop, conditions at mid-October and on the assumption that weather conditions would be normal in the final months of growth. As a result of this adverse influence at the last moment, we reduced our estimate of the Argentine crop last month from 260 to 220 million bushels, but it now appears that the damage done by frosts was much larger than was estimated by the Government, which, in its report on the crop situation published on 17 November, still considered that the condition of standing cereals varied from average to good. Therefore, instead of obtaining a better wheat crop than last year and the average, Argentina will thus have, in spite of the considerable increase in acreage, a small outturn amounting to some 57 million bushels or 23 per cent. less than last year, and 34 million bushels, or 15 per cent. less than the average production fo the previous five seasons. The poor results of this year's crop may be seen particularly in the forecast unit yield. This yield, calculated on the basis of the area sown in default of estimation for the area to be harvested, is very low at 10.1 bushels per acre against 14.3 bushels last year, and an average of 11.9 bushels in the five previous years.

Thus among the four large wheat exporting countries, the United States is the only one to produce a really large crop, Canada, Argentina and Australia having all harvested mediocre or poor productions. The second estimate of the Australian crop shows a small decrease (1 million bushels) on the November forecast, thus confirming a poorer crop than average but it is still considerably higher than last year. These last estimates involve a decrease of about 35 million bushels from the total wheat production of the southern hemisphere as estimated last month.

Some new estimates and a small number of revisions also have arrived at the Institute from the countries of the northern hemisphere. In France, according to the report of the Ministry of Agriculture, the crop is slightly better than had been forecast some months ago but is less than last year and considerably below the average. Denmark has issued her first estimate of production which is large, owing to the increase in acreage and the high unit yield. Great Britain has revised her previous estimate increasing it by about four million bushels. The revisions of the other European countries are insignificant. The total estimate of the European crop is now 10 million bushels higher than that calculated last month.

World wheat production 1)

(Million bushels).

YEARS	Europe 2)	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R
Average 1926-1930	1,342	1,315	300	518	117	164	3,756	836
1931	1,437	1,277	263	570	131	197	3,875	753
1932	1,489	1,213	286	503	140	225	3,856	742
1933	1,746	849	345	572	124	186	3,820	1,018
1934	1,549	816	290	554	153	140	3,502	1,117
1935	1,576	922	198	577	137	151	3,561	1,132
1936	1,480	873	297	596	115	157	3,518	...
1937 (Preliminary estimate)	1,520	1,073	245	630	132	170	3,770	..

1) Not including China, Iran and Iraq. — 2) Not including U R S S

In North America, the United States have published their final estimate reducing provisional estimates very slightly for winter wheat but rather considerably for spring wheat, the total reduction being about 13 million bushels. The final estimate of the Canadian crop will be published next month and it seems probable that little change will be made in the November estimates. No substantial revision has been made in the estimates of the countries of the other continents, but it is to be noted that a further reduction has been made in the total of the crop of the Union of South Africa, which, having suffered from drought, is much smaller this year than last year and the average.

On the basis of the various reports that reached the Institute during December, the world wheat production in 1937 is about 40 million bushels less than that estimated last month.

In regard to the statistical situation of the wheat market during the 1937-38 season it must be noted that, mainly as result of the heavy drop in the exportable stocks of Argentina, the surplus from the 1937 crop in the various exporting countries will be much smaller than we had calculated last October and consequently the stocks to be carried over to the new 1938-39 season will be correspondingly less. A revision of the statistical situation of the wheat market will be made next March when the various factors are known more precisely. Official statistics of the international wheat movement during the first three months of the present year are now known and they show a considerable reduction compared with the corresponding figures of exports from August to October last year, in spite of the resumption of wheat exports from the United States, which last year appeared among the importing countries. The four large exporting countries have placed on the international market 30 million bushels less than in the period August to October 1936,

World net exports of wheat (including flour in terms of wheat) *).

(Million bushels)

EXPORTS BY MONTHS				EXPORTS BY COUNTRIES			
Months	1937-38	1936-37	1935-36	Exporting Countries	Three months: August-October 1937-38	1936-37	1935-36
August	38	47	39	Canada 2)	28	71	52
September	39	52	50	United States 2)	18	5) + (12)	5) + (10)
October	48	52	51	Argentina	10	14	29
November	...	57	51	Australia	15	16	22
December	...	53	34	*Total four countries*	*71*	*101*	*103*
January	...	63	33	Romania	15	17	4
February	...	61	46	Hungary	3	10	5
March	...	62	45	Other Europ. count. 3)	4	13	3
April	...	47	31	North Africa	4	3	7
May	...	43	44	India	6	4	0
June	...	41	41	U. S. S. R.	19	1	18
July	...	29	38	Other countries 4)	3	2	1
Total August-October	*125*	*151*	*141*	*Total other countries*	*54*	*50*	*38*
Total Year	1) *533*	*607*	*503*	*General Total*	*125*	*151*	*141*

*) Aggregate net exports of the normal exporting countries (possible net imports into certain of these countries are not deducted from the totals).

1) Forecast October 1937. — 2) Net exports adjusted in accordance with the monthly variations in stocks of Canadian wheat in the United States and stocks of United States wheat in Canada. — 3) Bulgaria, Lithuania, Poland and Yugoslavia. — 4) Iran, Iraq, Turkey, Chile, and Uruguay. — 5) Net imports.

the largest decrease being in the case of Canada which has reduced her exports by 43 million bushels as a result of the small surplus left over from her very small outturn in 1937. The contribution of the minor exporting countries has been on the other hand larger than last year, for in the three months August to October they supplied about 54 million bushels against 50 million in the corresponding period of 1936, owing to the Soviet exports which reached 19 million bushels against 1 million last year.

In spite of small world exports, a large increase in imports is shown in Europe, extra-European importing countries having greatly reduced their purchases. The increase in demand for importation in Europe during the first three months of this season comes exclusively from the Continental countries, while imports into the United Kingdom and the Irish Free State have remained at exactly the same level as that of the last two years.

Net imports of wheat into Europe (including flour in terms of wheat) *).

(Million bushels)

IMPORTS BY MONTHS			
Months	1937-38	1936-37	1935-36
August	35	25	27
September	29	29	28
October	33	32	34
November	...	33	34
December	...	36	30
January	...	25	23
February	...	37	22
March	...	43	28
April	...	39	28
May	...	49	32
June	...	49	34
July	...	41	31
Total August-October	*97*	2) *86*	3) *89*
Total Year	1) *419*	*438*	*351*

IMPORTS BY COUNTRIES			
Importing Countries	Three months: August-October		
	1937-38	1936-37	1935-36
United Kingdom	48	47	48
Irish Free State	3	3	3
Total	*51*	*50*	*51*
Belgium	11	12	12
Netherlands	6	4	6
Germany	12	0	0
France	3	1	4
Switzerland	4	4	5
Greece	3	5	4
Italy	1	2	0
Scand. & Baltic States 4)	4	2) 4	3) 3
Other countries 5)	2	4	4
Total Continent	*46*	*36*	*38*
Total Europe	*97*	*86*	*89*

*) Aggregate net imports of normal importing countries, after deduction of net exports, if any.
1) Forecast October 1937. — 2) After deduction of net exports of 1 million bushels from Sweden. — 3) After deduction of net exports of 2 million bushels from Sweden and Latvia. — 4) Denmark, Estonia, Finland, Latvia, Norway and Sweden. — 5) Austria, Czechoslovakia, Spain, Portugal, Albania, Malta, etc.

The countries which in this period report increases over the same period in 1936 are Germany, France, and the Netherlands, while all other countries show a more or less considerable decrease or else maintain their imports with small fluctuations at about the level of last year.

Reports of the sowings of winter wheat of the 1938 crop which reached the Institute during December stated that the first stages of growth were generally satisfactory in almost all European countries, owing to the fine weather of November which enabled cereals to braird and autumn work to be completed. Only in some parts of southwest Europe was excessive rain reported to have hindered sowing and to have caused some slight flooding. Germination was almost everywhere even and the growth of the crop progressed in places even too rapidly. In U. S. S. R. the weather was favourable for sowing and crop condition before the winter season' was recorded as satisfactory.

In the United States the first estimate of the area sown to winter wheat shows, as was forecast, a very slight reduction on the record acreage of last year, but it is still definitely higher than the average. Crop condition varies from one district to another, in the east of the wheat belt and in the Pacific States it is generally good but in the west, where rain has been slight and the reserves of moisture in the sub-soil are small, it is mediocre. On the whole, however, the situation according to crop condition on 1 December seems slightly better than at the same date last year.

In India the growth of the crops is rather good but some areas (Punjab) complain of drought.

Crop situation in the countries of the Levant is on the whole good, but in North African countries it is less satisfactory, as there, the autumn was in general dry.

World production of rye.

The steady regression of the area under rye in Europe, which was checked and had even given place to a recovery in 1935 and 1936, has been renewed in 1937. The area harvested this year may be estimated at 40.0 million acres against the 41.3 million of last year and the five-year average of 41.0 million To this regression, to which the three large producers, Czechoslovakia, Germany and Poland, have especially contributed, there has this year been added the effect of unfavourable weather, which appreciably reduced unit-yields in the principal producing countries. The 1937 crop is thus one of the smallest recorded for many years, with a decrease of 31 million bushels or 4 per cent. on the already mediocre crop of last year and one of 86 million or 10 per cent. on the 1931-35 average

The production of the other continents is altogether very small, representing only 10 per cent. of the world total, excluding the Soviet Union, but it is of considerable importance since it supplies the principal part of the exports, which are almost entirely absorbed by European countries. North America had an abundant crop in 1937, especially in the United States, the most important producer, the crop is almost double that of 1936 and exceeds by 50 per cent. the 1931-35 average, which is, however, a low one, including three years of small crop.

In Asia, Turkey, which is practically the only producing country of any importance in that continent, reports an excellent crop; Argentina, on the other hand, which occupies the same position amongst South American producers, expects a distinctly small crop.

The production of the Soviet Union, which is of about the same volume as the total of all other countries, is not yet known but there are grounds for believing that it is very large owing to the favourable weather that prevailed in 1937.

World production of rye 1).

(Million bushels of 56 lb)

	Europe	North America	South America	Asia and Africa	Total 1)	U S S R
Average 1926-30	870	56	8	9	943	874
Year 1931	770	39	11	17	843	866
» 1932	933	48	13	9	1,003	866
» 1933	1,003	26	8	11	1,048	952
» 1934	886	22	17	11	936	791
» 1935	886	68	6	9	969	842
» 1936	842	30	8	19	899	.
» 1937	811	57	5	20	893	...

1) Excluding U. S S. R. and China

World production of rye, excluding the U. S. S. R., in 1937 appears to have been practically the same as in 1936, a year of small production. Given the geographical distribution of the crop, with a small production in Europe and a good one in the surplus-producing countries, there are grounds for expecting an appreciable recovery in international trade in this cereal during 1937-38 and large exports, especially from the Soviet Union and North America.

World production of barley.

In Europe the 1937 barley crop was small, its total remaining below that of last year, which was one of the smallest of recent years. The crop is especially bad in the exporting countries (Romania, Poland, Hungary, Czechoslovakia and Bulgaria) which together have produced 188 million bushels against 230 million in 1936 and 225 million on the average. Romania, which occupies a high rank amongst exporters of barley, had in 1937 scarcely a half-size crop, in consequence of the drought in spring which compromised a large part of its crops, Hungary also, though to a less extent, has had a similar experience. On the other hand, the production of the European importing countries was on the whole almost average, though the results varied from country to country. The large crop of Germany, which is the principal European producer, exceeded that of last year and the average, while the United Kingdom and France, which are also important growing countries registered crops smaller than both those of 1936 and the average.

North American production, though slightly diminished by the final estimate in the United States, is one of the largest of recent years, easily exceeding the small figure of 1936 and comparing favourably with the 1931-35 average, which was, however, a low one, including three years of half-crop.

World production of barley 1).

(Million bushels of 48 lb)

	Europe	North America	Asia	Africa	S America and Oceania	Total 1)	U S S. R.
Average 1926-30	739	381	331	96	32	1,579	271
Year 1931	689	271	344	106	37	1,447	239
» 1932	776	381	317	110	55	1,639	230
» 1933	776	221	331	106	55	1,489	358
» 1934	717	184	344	133	55	1,433	312
» 1935	698	372	345	101	41	1,566	375
» 1936	698	220	377	119	51	1,465	...
» 1937	671	308	395	87	46	1,507	...

1) Excluding U S. S. R , China and Turkey.

The Asiatic crop is very good, exceeding even that of 1936, which marked the record of recent years. Thanks to favourable weather Turkey, Chosen and Syria had abundant crops, exceeding the average by remarkable amounts, 53 per cent. in Turkey, 33 per cent. in Chosen and 14 per cent. in Syria. On the other hand, crops results in French North Africa appear to be very bad, all these countries having had very low unit-yields in consequence of drought damage

Argentina also reports a rather unsatisfactory crop, distinctly smaller than last year's or the average. The production of the Soviet Union, for which official estimates are not yet available for either this year or last year, seems to have been very large in 1937 while in 1936 it was very small. Indirect confirmation of the good unit-yields obtained in 1937 is given by the export figures; in the first quarter, from August to October, the U. S. S. R exported about 5 million bushels of barley while in the same period of 1936 shipments were practically negligible.

Summing up, it may be said that barley production in 1937 differed greatly according to continent and has been very unequal as between one country and another on the same continent. On the whole, it appears mediocre, for, though it exceeds by 3 per cent. the poor crop of 1936, it is rather below the five-year average. The geographical distribution of the 1937 crop leads to the expectation of a displacement of the export currents, with a decrease in shipments from Danubian lands, Argentina and North Africa, a recovery in those from North America and an increase in those from Asia.

World production of oats.

In Europe the oat crop of 1937, though slightly larger than last year's is rather mediocre, being 5 per cent. smaller than the average for 1931-35. In the three principal producing countries, France, Germany and Poland, production did not attain the average level of the five preceding years. In North America production appears to be distinctly larger than in 1936 and also exceeds the average thanks to the good results in the United States, though the Canadian crop was severely reduced by drought and was of much the same size as the very small one of last year. Amongst producing countries of smaller importance Turkey has a large crop but Argentina only a mediocre one.

World production of oats 1)

(Million bushels of 32 lb.)

	Europe	North America	Asia and Africa	S. America and Oceania	Total 1)	U. S. S. R.
Average 1926-30	1 846	1 612	48	96	3 602	1 061
Year 1931	1 695	1 474	48	103	3 320	758
1932	1 853	1 667	48	103	3 671	772
1933	1 943	1 061	48	96	3 148	1 061
1934	1 681	882	48	96	2 707	1 302
1935	1 653	1 618	48	70	3 389	1 259
1936	1 647	1 075	48	96	2 866	
1937	1 702	1 440	55	90	3 287	

1) Excluding U. S. S. R. and China.

The world crop of 1937 (excluding the Soviet Union, for which no estimate is available but which seems to have had one of the best crops of recent years) exceeds by more than 10 per cent the small production of 1936 and may be considered as practically average.

G. CAPONI

Current information from various countries on wheat, rye, barley and oats.

Europe

Germany. During November the soil moisture was regarded as sufficient in 72 per cent of agricultural land, rather heavy in 2 per cent and light in about 26 per cent. Rainfall in the Reich as a whole was better distributed than in October. As a result of favourable weather conditions the seeds of winter cereals sprouted early and have grown well. Crop conditions on 1 December in the system of the country compared with the figures for 1 November 1937 and 1 December 1936 were as follows: winter wheat 2.5 (2.5 and 2.9), winter rye 2.3 (2.5 and 3.0), winter barley 2.4 (2.4 and 2.8), winter spelt 2.3 (2.5 and 2.8).

Belgium. November was exceptionally mild with some light night frosts; rainfall was light. Sowings of autumn cereals took place in very good conditions and crop condition is excellent.

Spain. According to the Press, the Junta Tecnica del Estado at Burgos has reported that wheat production in the territory under its control, namely West Andalusia, Estremadura, Leon, Galicia, Old Castile, the Central Pyrenees and part of East Andalusia, La Mancha Centrale and Aragon y Rioja, was about 50 per cent larger than the corresponding yield of 1936 and appreciably above the average of the preceding five years. Wheat supplies after meeting internal requirements amount to 18 million centals (29 million bushels). The wheat area is reported to be 163 000 acres larger than last year.

France. November was fairly fine on the whole with some well distributed rainfall and favourable for field work and sowings. At the end of the month the latter had been completed in many departments in the north and east and they were well advanced in the west. The area of wheat sowings will be equal to or greater than last

Area and production of wheat.

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	87	90	92	96.7	94.9	776	678	1,010	1,293	1,129	1,684	114.5	76.8
Germany	4,879	5,151	5,471	94.7	89.2	96,717	97,597	106,000	161,192	162,659	176,664	99.1	91.2
Austria	642	624	554	102.9	116.0	8,682	8,424	7,996	14,469	14,040	13,327	103.0	108.6
*Belgium	423	424	391	99.8	108.4	...	9,692	9,254	...	16,153	15,424	...	...
Bulgaria	2,861	2,955	3,023	96.8	94.6	33,896	36,211	30,592	56,492	60,350	50,985	93.6	110.8
Denmark	319	296	272	107.8	117.3	8,157	6,760	7,214	13,595	11,267	12,023	120.7	113.1
*Spain	...	10,768	11,261	...	...	...	72,896	96,204	...	121,490	160,337	...	...
Estonia	168	162	140	103.8	120.4	1,660	1,460	1,398	2,767	2,433	2,330	113.7	118.8
Finland	242	215	99	112 4	245 0	3,792	3,265	1,509	6,320	5,442	2,515	116.1	251.2
France	w) 12,772	12,712	13,276	—	—	148,365	152,773	190,015	247,270	254,616	316,685	97.1	78.1
Greece	2,118	2,065	1,755	102.5	120 7	19,424	11,722	13,145	32,373	19,537	21,908	165.7	147.8
Hungary	3,784	4,029	3,932	93.9	96.2	41,937	52,674	45,891	69,894	87,788	76,483	79 6	91.4
*Irish Fr. St.	...	255	70	...	...	...	4,704	1,690	...	7,839	2,817	...	...
Italy	12,820	12,693	12,260	101.0	104.6	177,609	134,744	160,287	296,009	224,568	267,140	131.8	110.8
Latvia	339	319	295	106.2	114 6	3,781	3,163	3,597	6,302	5,272	5,995	119 5	105.1
Lithuania	516	485	507	106.4	101.6	4,794	4,766	5,582	7,991	7,942	9,304	100.6	85.9
Luxemburg	45	45	34	100.0	131.2	714	642	518	1,190	1,070	863	111.2	138.0
Malta	9	10	9	95.9	99.3	196	141	165	326	236	274	138.6	119.0
Norway	79	75	38	106.2	208.5	1,514	1,257	620	2,524	2,094	1,034	120.5	244.1
Netherlands	320	374	315	85 6	101 6	7,776	9,345	8,353	12,959	15,575	13,922	83.2	93.1
Poland	4,183	4,305	4,333	97 2	96.5	40,565	47,015	43,549	67,607	78,357	72,580	86.3	93 1
Portugal	1,093	1,157	1,376	94.4	79.4	8,724	5,190	11,864	14,540	8,651	19,773	168.1	73.5
Romania	8,618	8,481	7,893	101.6	109.2	81,602	77,231	57,949	136,001	128,716	96,579	105.7	140.8
Un Kingdom:													
England W.	1,731	1,704	1,535	101.6	112.7	31,203	30,867	31,409	52,005	51,445	52,349	101.1	99.3
Scotland	100	94	76	107.0	132.3	2,509	2,128	1,935	4,181	3,547	3,226	117.9	129.6
*N Ireland	4	7	6	63 3	72.1	...	164	142	...	273	236	...	...
Sweden	726	695	701	104.6	103.6	15,898	12,915	14,264	26,495	21,524	23,773	123.1	111.5
Switzerland	174	172	149	101.3	117 1	3,697	2,682	2,978	6,162	4,470	4,963	137.9	124.2
Czechosl 1)	2,098	2,291	2,213	91.5	94.8	30,760	33,350	33,607	51,266	55,582	56,011	92.2	91.5
Yugoslavia	5,269	5,463	5,112	96 5	103 1	51,752	64,454	46,830	86,252	107,421	78,048	80.3	110.5
Total Europe	*65,992*	*66,662*	*65,460*	*99.0*	*100 8*	*826,500*	*801,454*	*828,277*	*1,377,475*	*1,335,731*	*1,380,438*	*103 1*	*99 8*
*U S S. R.	2) 101,678	96,116	87,437	105.8	116.3	...	...	571,965	...	...	953,256	...	...
Canada	25,570	25,289	25,630	101.1	99.8	109,503	137,531	208,125	182,505	229,218	346,876	79.6	52.6
United States w)	46,946	37,687	35,540	124 6	132 1	411,061	311,924	311,058	685,102	519,874	518,430	131.8	132.1
United States s)	17,514	11,176	16,354	156 7	107.1	113,335	64,135	96,724	188,891	106,892	161,206	176 7	117.2
Mexico	1,273	1,263	1,229	100.8	103.6	6,730	8,164	7,160	11,216	13,606	11,933	82.4	94.0
Total N. Am	*91,303*	*75,415*	*78,753*	*121 1*	*115.9*	*640,629*	*521,754*	*623,067*	*1,067,714*	*869,590*	*1,038,445*	*122.8*	*102.8*
*China	42,617	50,333	49,569	84.7	86 0	381,875	508,779	487,834	636,446	847,948	813,040	75.1	78.3
*Cyprus	...	190	176	...	...	...	1,105	1,103	...	1,842	1,838	...	...
Chosen	839	818	800	102.6	104.9	6,625	4,847	5,471	11,041	8,078	9,118	136.7	121.1
India	33,222	33,639	33,825	98.8	98.2	219,699	211,008	210,269	366,165	351,680	350,448	104.1	104.5
*Iraq	...	3,000	3) 2,417	...	...	...	11,795	7,441	...	19,658	3) 12,401	...	...
Japan	1,770	1,688	1,440	104.8	122.9	30,247	27,117	24,220	50,410	45,194	40,365	111 5	124.9
Manchukuo	...	2,682	3,102	...	...	22,708	18,406	22,777	37,845	30,675	37,960	123 4	99.7
*Palestine	...	...	472	...	...	...	1,677	1,598	...	2,795	2,663	...	...
Syria & Leb.	1,349	1,316	1,253	102.5	107.6	10,326	9,422	8,680	17,210	15,704	14,467	109.6	119.0
*Transjordan	—	—	—	—	—	...	898	1,379	...	1,497	2,298	...	...
Turkey	8,323	8,843	7,983	94.1	104.3	84,188	83,099	55,732	140,311	138,496	92,884	101.3	151.1
Total Asia §)	*48,185*	*48,986*	*48,403*	*98.4*	*99.5*	*373,793*	*353,899*	*327,149*	*622,982*	*589,827*	*545,242*	*105.6*	*114 3*
Algeria	4,062	4,287	3,907	94.8	104.0	20,397	17,864	19,674	33,995	29,773	32,789	114.2	103.7
Egypt	1,421	1,464	1,549	97.1	91.8	27,226	27,421	26,293	45,376	45,701	43,822	99.3	103.5
*Eritrea	...	40	14	...	...	...	249	52	...	414	86	...	...
*Kenya 4)	...	...	41	...	...	468	444	252	780	740	419	105.4	186.0
Libya	85	80	46	106.4	186.6	397	251	149	661	418	249	158.1	265.6
F. Morocco	2,743	3,194	5) 3,019	85.9	—	11,023	7,341	5) 17,554	18,372	12,234	5) 29,255	150.2	—
Tunisia	2,429	1,221	2,019	199.0	120.3	10,582	4,850	8,554	17,637	8,083	14,256	218.2	123.7
Total N. Afr.	*10,740*	*10,246*	*10,540*	*104.9*	*101.9*	*69,625*	*57,727*	*72,224*	*116,041*	*96,209*	*120,371*	*120.6*	*96.4*
Argentina	6) 18,909	6) 17,503	6) 17,954	108.0	105.3	115,192	149,518	135,462	191,983	249,192	225,766	77.0	85.0
*Chile	1,898	1,918	1,826	99.0	103.9	...	17,222	17,670	...	28,702	29,450	...	...
*Uruguay	...	998	1,116	...	...	...	6,301	6,853	...	10,501	11,421	...	...
Un. S. Africa	1,751	2,133	1 763	82.1	99.3	6,520	9,646	8,682	10,867	16,077	14,470	67.6	75.1
Australia	13,735	12,351	13,982	111.2	98.2	97,172	90,064	103,139	161,954	150,106	171,898	107.9	94.2
*N. Zealand 7)	188	225	273	83.7	68.9	...	4,301	4,976	...	7,169	8,293	...	...
TOTALS §	**250,615**	**233,296**	**236,855**	**107.4**	**105.8**	**2,129,431**	**1,984,062**	**2,098,000**	**3,549,016**	**3,306,732**	**3,496,630**	**107.3**	**101.5**

See notes on page 984.

Area and production of rye

COUNTRIES	†) AREA					†) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38: 1936 — 1936/1937 = 100	% 1937 / 1937/38: Aver = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	8	7	7	106 1	115 7	64	65	74	114	116	132	98 7	86 4
Germany	10 270	11,154	11,056	92 1	92 9	149,081	162 844	171,328	266 217	290 793	305,945	91 5	87 0
Austria	891	921	947	96 8	94 1	9 425	10 420	13 130	16 830	18,608	23,447	90 4	71 8
*Belgium	378	385	479	98 3	78 9		7 873	10 608		14,060	18 944		
Bulgaria	456	489	517	93 1	88 1	4,644	4 585	4 880	8,293	8 188	8 714	101 3	95 2
Denmark	343	327	350	105 1	98 1	5 291	4 392	5,490	9 448	7 842	9,804	120 5	96 4
*Spain		1,471	1,466				10,110	12,150		18 053	21 697		.
Estonia	368	338	363	109 0	101 4	4,541	3,384	4 204	8,109	6 044	7,507	134 2	108 0
Finland	598	593	570	100 8	105 0	9 127	7,143	7,768	16 299	12 755	13,871	127 8	117 5
France	1 636	1,634	1,712	100 1	95 6	16,325	15 764	18 042	29,152	28 150	32,218	103 6	90 5
Greece	176	160	178	109 9	98 7	1 444	926	1,270	2 579	1 654	2,267	155 9	113 8
Hungary	1,516	1,607	1,568	94 3	96 7	12 849	15 744	15,978	22 945	28 115	28,532	81 6	80 4
*Irish Free State		2	3				38	48		68	85		
Italy	259	261	285	99 4	91 0	3 193	2 914	3,517	5 701	5 204	6 281	109 5	90 8
Latvia	713	637	627	111 8	113 8	9 291	6 305	6,935	16 592	11 260	12,385	147 4	134 0
Lithuania	1,259	1,216	1,231	103 5	102 3	13 249	11 935	12,548	23,658	21 313	22,407	111 0	105 6
Luxemburg	19	19	19	100 0	101 3	274	251	270	489	449	481	109 1	101 7
Norway	15	15	15	100 0	94 9	260	238	248	465	425	443	109 4	104 9
Netherlands	557	554	449	100 6	124 0	10 926	10,673	9 168	19 511	19 059	16 371	102 4	119 2
Poland	14,141	14,410	14,160	98 1	99 9	128 530	140 302	140 952	229 518	250 541	251 701	91 6	91 2
Portugal	569	388	376	146 4	151 1	2 600	1 941	2,573	4 642	3 466	4,595	134 0	101 0
Romania	1,060	1 041	939	101 8	112 9	9,350	9 992	7,063	16 697	17,842	12 613	93 6	132 4
Sweden	519	530	547	97 9	94 8	9 511	7 779	9,393	16 984	13 891	16,773	122 3	101 3
Switzerland	37	38	42	97 2	89 1	679	603	773	1 213	1,077	1,381	112 5	87 8
Czechoslovakia	2 390	2 494	2,512	95 8	95 2	32,730	31 667	38 849	58,447	56 549	69 374	103 4	84 2
Yugoslavia	627	628	615	99 9	102 1	4,614	4,481	4 593	8,239	8 002	8 202	103 0	100 5
Total Europe	*38 427*	*39,461*	*39 085*	*97 4*	*98 3*	*437 998*	*454 348*	*479 046*	*782 142*	*811 343*	*855 444*	*96 4*	*91 4*
*U S S R	.	.	62 627				.	483 652			863 667		
Canada	894	635	712	140 7	125 5	3 219	2 397	3 615	5 749	4 281	6 456	134 3	89 0
United States	3 839	2 774	3 021	138 4	127 1	27 691	14 179	19 027	49 449	25 319	33 977	195 3	145 5
Total N Am	*4 733*	*3 409*	*3 733*	*138 8*	*126 8*	*30 910*	*16 576*	*22 642*	*55 198*	*29 600*	*40 433*	*186 5*	*136 5*
Turkey	875	909	670	96 2	130 6	10 540	9 889	5 824	18 822	17 660	10 400	106 6	181 0
Algeria	4	4	3	97 6	114 4	23	16	17	41	29	31	142 6	134 0
*French Morocco	.	7	3		.		20	12		35	22		
Argentina	6) 2,184	6) 2 204	6) 1 731	99 1	126 2	2 535	4 189	5,626	4 527	7 480	10 047	60 5	45 1
*Un of S Afr	.		8) 99			422	447	9) 498	754	798	9) 889	94 4	84 7
TOTALS	**46,223**	**45,987**	**45,222**	**100.5**	**102.2**	**482,006**	**485,018**	**513,155**	**860,730**	**866,112**	**916,355**	**99.4**	**93 9**

See notes on page 984

Area and production of barley.

COUNTRIES	†) AREA					‡) PRODUCTION							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Aver. = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania	11	11	13	98.1	83.7	108	95	142	226	198	295	114.0	76.4
Germany	4,235	4,041	3,958	104.8	107.0	78,184	74,937	71,837	162,886	156,122	149,663	104.3	108.8
Austria	397	403	415	98.5	95.6	5,505	6,130	6,123	11,469	12,771	12,757	89.8	89.8
*Belgium	61	74	86	82.5	71.1	...	1,748	2,016	...	3,642	4,199	...	...
Bulgaria	530	537	569	98.8	93.2	7,044	7,109	6,444	14,675	14,810	13,426	99.1	109.3
Denmark	906	912	860	99.4	105.4	24,030	19,803	21,994	50,064	41,257	45,823	121.3	109.3
*Spain	...	4,528	4,683	...	...	...	37,690	52,784	...	78,523	109,968	...	...
Estonia	220	250	263	88.0	83.7	1,807	1,915	2,280	3,765	3,989	4,750	94.4	79.3
Finland	324	324	312	100.0	103.7	3,836	4,165	3,958	7,992	8,676	8,245	92.1	96.9
France	1,765	1,837	1,795	96.1	98.3	21,963	22,467	23,516	45,758	46,807	48,993	97.8	93.4
Greece	566	511	536	110.8	105.6	4,963	3,388	4,268	10,341	7,058	8,892	146.5	116.3
Hungary	1,180	1,161	1,152	101,6	102.4	10,412	14,514	13,832	21,692	30,238	28,818	71.7	75.3
*Irish Fr. St.	...	130	124	...	...	...	2,739	2,836	...	5,707	5,908	...	...
Italy	483	482	510	100.1	94.7	5,149	4,246	4,944	10,728	8,845	10,300	121.3	104.2
Latvia	449	468	458	95.9	98.0	4,815	3,639	4,417	10,032	7,580	9,202	132 3	109.0
Lithuania	529	529	501	99.9	105.5	5,449	5,128	5,369	11,353	10,683	11,185	106.3	101.5
Luxemburg	5	5	8	100.0	66.3	68	65	99	142	134	207	105.9	68.7
*Malta 10)	...	5	6	...	...	...	83	113	...	173	236	...	...
Norway	149	149	143	99.7	103.8	2,864	2,531	2,420	5,967	5,273	5,042	113.2	118.3
Netherlands	122	106	69	116.0	177.7	3,091	2,668	1,715	6,439	5,559	3,573	115.8	180.2
Poland	3,046	2 933	2,993	103.9	101.8	28,881	30,896	31,894	60,169	64,367	66,447	93.5	90.6
Portugal	194	193	171	100.4	113.2	957	769	942	1,994	1,603	1,962	124.4	101.7
Romania	3,780	3,980	4,411	95.0	85.7	19,071	35,535	28,929	39,732	74,031	60,270	53.7	65.7
Un Kingdom:													
Engl. & W	823	819	879	100.5	93 7	12,902	14,851	15,922	26,880	30,940	33,171	86 9	81.0
Scotland	81	72	78	111.9	103 8	1,770	1,478	1,626	3,687	3,080	3,388	119 7	108.8
*N. Ireland	3	3	2	98.2	144.6	...	62	43	...	130	90	...	...
Sweden	255	255	270	99 6	94 2	4,306	4,404	4,746	8,970	9,175	9,889	97.8	90.7
Switzerland	11	10	15	102.5	70.3	181	155	253	377	322	528	117.1	71.4
Czechosl.	1,658	1,565	1,680	105.9	98 7	24,582	22,462	26,570	51,214	46,797	55,354	109 4	92.5
Yugoslavia	1,030	1,051	1,043	98 0	98.7	8,443	9,322	8,959	17,590	19,421	18,665	90.6	94.2
Total Europe.	*22,749*	*22,604*	*23,102*	*100.7*	*98 5*	*280,381*	*292,672*	*293,199*	*584,142*	*609,738*	*610,845*	*95.8*	*95.6*
*U. S. S. R.	2) *21,574*	2) 20,150	18,869	107.1	114.3	...	...	145,729	...	...	303,607	...	...
Canada	4,331	4,432	3,741	97.7	115.8	41,265	34,523	34,486	85,969	71,922	71,846	119.5	119.7
United States	9,959	8 372	10,596	119 0	94.0	105,425	70,788	101,177	219,635	147,475	210,785	148 9	104 2
Total N. Am.	*14,290*	*12,804*	*14,337*	*111.6*	*99.7*	*146,690*	*105,311*	*135,663*	*305,604*	*219,397*	*282,631*	*139 3*	*108.1*
*China	14,721	16,162	16,329	91.1	90.1	140,466	179,400	173,541	292,642	373,756	361,551	78.3	80.9
*Cyprus	...	110	107	...	...	...	908	777	...	1,891	1,618	...	...
Chosen	2,685	2,616	2,481	102.7	108 2	30,112	22,292	22,578	62,734	46,442	47,038	135 1	133.4
*Iraq	...	2,000	3) 1,270	...	...	...	12,125	3) 6,449	...	25,262	3) 13,435	...	...
Japan	1,866	1,918	1,979	97.3	94.3	34,727	33,098	36 327	72,349	68,955	75,683	104.9	95.6
*Palestine	...	...	494	...	...	...	1,216	1,045	...	2,534	2,178	...	...
Syria & Leb.	795	727	766	109.3	103.7	7,209	6,792	6,322	15,019	14,151	13,170	106.1	114.0
*Transjord.	—	—	—	—	—	...	371	535	...	772	1,114	...	...
Turkey	4,408	4,484	3,762	98.3	117.2	50,375	50,788	32,890	104,949	105,810	68,522	99.2	153.2
Total Asia.	*9,754*	*9,745*	*8,988*	*100.1*	*108.6*	*122,423*	*112,970*	*98,117*	*255,051*	*235,358*	*204,413*	*108 4*	*124.8*
Algeria	2,951	3,120	3,240	94.6	91.1	12,487	14,150	16,486	26,015	29,480	34,347	88.2	75.7
Egypt	271	282	308	95.9	88.0	5,074	5,196	4,847	10,571	10,825	10,098	97.7	104.7
*Eritrea	...	91	56	...	...	...	440	331	...	916	689	...	...
Libya	243	179	407	135.3	59.7	882	261	1,019	1,837	543	2,124	338.2	86.5
F. Morocco	4,201	4,104	5) 3,684	102.4	—	16,755	33,651	5) 25,173	34,907	70,108	5) 52,444	49 8	—
Tunisia	1,532	741	1,240	206,7	123.5	4,409	1,653	5,027	9,186	3,445	10,472	266.7	87.7
Total Africa	*9,203*	*8,426*	*8,879*	*109.1*	*103.6*	*39,607*	*54,911*	*52,552*	*82,516*	*114,401*	*109,485*	*72.1*	*75.4*
Argentina	6) 1,942	6) 1,925	6) 1,746	100.9	111.2	11,905	14,330	13,694	24,803	29,855	28,530	83.1	86.9
*Chile	213	178	161	120.1	132.7	...	2,169	2,394	...	4,519	4,987	...	...
*Uruguay	...	49	18	...	...	...	381	129	...	794	268	...	...
Un. of S. Afr.	...	73	11) 76	...	...	688	642	3) 630	1,434	1,337	3) 1,313	107.3	100.3
*N. Zealand 7)	30	26	27	119.6	111 6	...	373	306	...	778	637	...	...
TOTALS §)	**58,011**	**55,577**	**57,128**	**104.4**	**101.5**	**601,694**	**580,836**	**593,855**	**1,253,550**	**1,210,086**	**1,237,217**	**103.6**	**101.3**

See notes on page 984.

Area and production of oats.

Countries	†) Area					†) Production							
	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 / 1937/38		1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 / 1937/38	
				1936 — 1936/1937 = 100	Aver = 100							1936 — 1936/1937 = 100	Aver = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania . .	24	25	24	97 2	100 7	181	190	234	565	595	730	95 0	77 4
Germany .	7,030	6,866	7,791	102 4	90.2	129,378	123,865	135,125	404,304	387,074	422,261	104.5	95.7
Austria .	698	713	755	97.9	92.4	9,116	9 421	9,180	28 488	29,439	28 687	96.8	99.3
*Belgium	521	534	648	97.6	80.5	.	12,196	15,245		38,111	47,640	...	...
Bulgaria .	269	299	299	90 1	90.1	2,734	2,998	2,205	8,544	9,368	6,890	91.2	124 0
Denmark . .	928	933	943	99 5	98.4	22 267	18,437	22 120	69 583	57,616	69,122	120 8	100 7
*Spain . .	.	1,358	1,917	...	.	.	12,183	14 774		38,070	46,169	.	..
Estonia .	358	341	350	104 9	102.3	3,168	2,509	3,106	9 900	7,842	9,706	126 2	102.0
Finland .	1,122	1,087	1,142	103 2	98 3	14,771	14,357	14,815	46,159	44,864	46,295	102 9	99 7
France .	7 952	8,134	8,312	97.8	95.7	100 477	92,914	105,481	313,989	290,354	329,626	108.1	95.3
Greece . .	415	335	336	123.8	123 2	3,122	2,081	2,244	9,755	6,502	7,014	150 0	139 1
Hungary . .	572	529	560	108 2	102.3	5,184	5,776	6,053	16,201	18,049	18,914	89 8	85 7
*Irish Free State		559	617	...	.	. .	11,580	13,211	. .	36,188	41,283	.	.
Italy	1,069	1,075	1,093	99.4	97.9	13,629	10,545	12 165	42,591	32,952	38,015	129 3	112 0
Latvia	828	838	784	98.8	105.7	8,929	6,270	7,808	27,903	19,595	24,401	142 4	114.4
Lithuania	861	883	867	97.6	99.4	8,595	7 310	8,274	26,860	22,845	25 856	117 6	103 9
Luxemburg	65	65	69	100.0	94.1	924	836	1,002	2 887	2,612	3 132	110 5	92 2
Norway .	211	210	231	100 3	91 4	4,260	3 775	3,835	13,314	11,797	11,983	112 9	111.1
Netherlands.	358	333	339	107 4	105.7	9,420	6,988	6,277	29,438	21 836	19,615	134 8	150 1
Poland	5,672	5,572	5,458	101.8	103.9	53,132	58,204	55,256	166 035	181,887	172,675	91 3	96.2
Portugal	723	657	442	110.1	163.6	2,360	1,847	1,962	7 376	5 770	6,132	127.8	120 3
Romania	1,906	1,986	2,035	96.0	93.7	8,388	18,676	14 446	26,211	58 362	45,144	44 9	58 1
United Kingdom:													
Engl and Wales .	1,222	1,420	1,510	86 1	81.0	21,011	24,192	26 746	65,660	75,600	83 580	86 9	78 6
Scotland .	819	829	840	98.8	97.4	14,918	14,381	15,178	46 620	44,940	47 432	103.7	98 3
*N. Ireland	257	265	282	96.9	91.0	.	5,796	5,878		18,112	18,370	.	..
Sweden .	1,641	1,654	1,629	99.2	100.7	27,673	27,293	25,755	86,476	85,291	80 484	101 4	107 4
Switzerland	27	26	35	104.1	77 5	514	440	647	1,605	1,375	2,022	116 8	79 4
Czechoslovakia .	1,920	1,888	1,972	101.7	97 4	30,255	26,860	29,417	94 547	83,938	91,928	112 6	102 8
Yugoslavia .	846	890	902	95.0	93 8	6,565	7,342	6,686	20,517	22,942	20,894	89.4	98 2
Total Europe	*37,536*	*37,588*	*38,718*	*99 9*	*96 9*	*500,971*	*487,507*	*516,017*	*1,565,528*	*1,523,445*	*1,612,538*	*102 8*	*97.1*
*U. S S R .	2) 43,193	2) 43,525	42,460	99.2	101.7	. .		329,727	..		1,030,389	...	...
Canada . .	13,048	13,118	13,468	99 5	96 9	93 319	92,405	118,509	291 622	288,764	370,342	101 0	78.7
United States	35,079	33,370	37,553	105 1	93 4	366,720	251,362	310,094	1,146 000	785,506	969,044	145 9	118 3
Total N Am	*48,127*	*46,488*	*51,021*	*103 5*	*94 3*	*460,039*	*343,767*	*428,603*	*1,437,622*	*1 074,270*	*1,339,386*	*133 8*	*107 3*
*China . . .	2,428	2,628	3) 2,497	92 4	97 3	18,794	19,881	3) 19 181	58,732	62,129	3) 59,941	94 5	98 0
Syria & Leb.	27	28	30	93.9	87.6	237	241	278	741	752	868	98 4	85.4
Turkey .	554	1,099	433	50 4	127.7	5,307	4,751	3,715	16,583	14,846	11,611	111.7	142.8
Algeria.	477	473	476	101.0	100.3	2,866	3,869	2,931	8,957	12,090	9,160	74.1	97.8
Fr. Morocco	94	80	5) 66	116.8	—	926	425	5) 497	2 894	1,328	5) 1,552	218 0	—
Tunisia .	91	62	65	148.0	141.5	628	220	481	1,963	689	1,502	285 0	130.7
Total N. Afr	*662*	*615*	*607*	*107 6*	*108 9*	*4,420*	*4,514*	*3,909*	*13,814*	*14,107*	*12,214*	*97.9*	*113 1*
Argentina	6) 3,254	6) 3,158	6) 3,434	103 1	94 8	15,653	17,461	19,061	48,915	54,564	59,566	89.6	82.1
*Chile . .	289	282	202	102 4	143 2	. .	2,206	1,966	...	6,894	6,144	...	...
*Uruguay . .	...	213	181	...	...	. .	1,449	841	...	4,529	2,628	...	...
Un. of S. Afr	...	614	3) 479	...	..	2,332	2 344	3) 2,560	7,289	7,325	3) 7,999	99 5	91.1
*New Zealand 7).	286	316	371	90.5	77 0	...	1,410	1,311	...	4,407	4,096	...	...
TOTALS§)	**90,774**	**89,590**	**94,722**	**101.3**	**95.8**	**988,959**	**860,585**	**974,143**	**3,090,492**	**2,689,309**	**3,044,182**	**114.9**	**101.5**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including spelt. — 2) Area provided for in the Plan — 3) Average of three years. — 4) Cultivation by Europeans only — 5) Incomplete data — 6) Area sown. — 7) Area includes that for chaff, hay, feeding-off, etc. — 8) Year 1933-34. — 9) Average of two years — 10) Barley and meslin. — 11) Average of four years year's. The same is true of the other cereals with an increase in barley for malting at the expense of ordinary barley

Sprouting was generally good and the situation was considered generally satisfactory at the end of the month.

The first half of December was rather wet with floods in some places Dry, cold weather set in after the middle of the month. These conditions do not appear to have appreciably changed the situation, which remained good

Greece The reports received at the end of December on the production of cereals in 1031 report a further very slight reduction in estimates for all cereals, with the exception of an increase for wheat The sowing of winter cereals was finished at the end of November in good conditions almost everywhere, in spite of frequent rain.

According to the estimate of December, production of meslin is estimated at about 986,000 centals (1,700,000 bushels) against 853,900 (1,472,300) and 757,400 (1,305,900), percentages, 115 5 and 130.2

Hungary Following the very hot, dry weather at the beginning of November, the weather became exceptionally wet throughout the country The rainfall in the first three weeks of November was above average throughout the country In 2/3 of the country the rainfall was double the average and in ¼ it was treble. The temperature was very high in the first week of November, but after 11 November it fell sharply The wet weather hindered field work (particularly autumn ploughing) and also sowing, in districts where it had not been completed at this period On the whole, winter cereal seeds sprouted evenly, the growth of those sown early was advanced On 20 November, late sown crops were also growing well. In some provinces, rather large areas are reported to be under water Damage by frost, field-mice and insect pests is insignificant

(Telegram of 20 December) Crop condition of cereals is satisfactory

Irish Free State The weather during November was dry and mild and exceptionally favourable for all field operations, and germination was satisfactory

Italy In the first fortnight of November the weather was still unfavourable for cereal crops, particularly in north and central Italy, and excessive rain hindered sowing in the plains However, despite the unfavourable weather, wheat sown earlier showed, with few exceptions, a very regular and even germination weed infestation is reported Sowing of other winter cereals had finished and crops had sprouted well. In south Italy also the weather was not always favourable for sowing, but in the islands rain was almost everywhere beneficial for sowing of cereals Rain was heavy in most places in the second half of November Attacks of *Agriotes lineatus*, though only of slight extent, were reported among the first sowings Growth is suffering owing to excessive moisture, particularly in low lying areas

Latvia November was marked by rather high temperatures and heavy rainfall There was a thin snow cover on fields at the middle of the month but this had disappeared by the beginning of the third decade The crop condition of winter wheat on 15 November was average according to 15 per cent of the crop reporters, above average according to 82 8 per cent and below average according to 2 2 per cent Corresponding figures for winter rye were 27 3 per cent, 68.1 per cent and 4 6 per cent According to the most recent estimate, the production of meslin this year is about 2,533,600 centals (4,368,300 bushels) against 1,879,900 (3,241,200) in 1936 and 2,038,000 (3,513,800) on the average of the five years ending 1935, percentages, 134,8 and 124,3.

Lithuania· Weather conditions in November were normal. In the first decade of the month the weather was warm and dry. In the second, the temperature fell and there was some rain. In the third decade there was a little snow; the temperature oscillated around zero. The germination of crops was even but in some places the lack of rain rather affected it.

Poland The warm autumn generally encouraged the growth of the winter crops, though in the north-east there was a shortage of soil moisture which had an unfavourable effect on the later sown winter crops. In central, western and southern areas, the adequate soil moisture and the warm weather accelerated growth. In many places the early sown winter crops grew too rapidly and had to be mown or pastured (about 40 per cent. of the crop reports). Between 15 October and 15 November, growth and condition of winter cereals improved. For wheat, rye and barley, condition, which was 3.5 on 15 October, rose to 3 9 for rye and to 3.6 for wheat and barley. Conditions on 15 November last year were as follows wheat and rye 2,8, barley 3 0

Portugal Sowings of wheat and other cereals proceeded regularly during October. The first sowings sprouted well.

Romania: On 10 December, the seedlings of winter cereals were growing well. The soil moisture was sufficient. The sowings will be well grown when they reach the winter period. At that date, it was estimated that the acreage under winter wheat this year was 10 per cent. larger than last. For the 1937-38 season a gradual increase in the mechanisation of Romanian agriculture (purchase of tractors, etc) is reported.

United Kingdom The weather during November in England and Wales was generally open and dry. There was a fair amount of night frost and temperatures, as a whole, were about or somewhat below normal. The rainfall generally was low and sunshine variable. Widespread fog was experienced on several occasions, in particular in the Midlands and south of England towards the close of the month The conditions allowed good progress to be made with all farming operations. Autumn sowing and cultivation are well forward for the season and the lifting of sugar beet has not retarded the sowing of corn to any great extent. Early sown corn has germinated well and appears generally a good strong plant. The revised estimated of the 1937 wheat crop now puts production slightly above last year's and within 1 per cent. of the five year average. Increases were made also in the estimates for barley and oats

Yugoslavia During the first half of November, weather was generally dry and sunny with variable but rather low temperatures. Rain and snow on heights, accompanied by morning fog and frost did not impede sowings in the second half of the month. Sowings were nearly finished at the end of the month in good conditions

U. R. R. S. On 30 November, threshing was finished over an area of 192,997,000 acres, or 86 per cent. of the area harvested On 15 November sowing of winter cereals was finished over an area of 89,557,000 acres, or 98 per cent. of the plan, against 92,614,000 or 98 per cent of the plan, sown at the same date last year At the middle of the second decade of November, snow fell in the north and with a steady drop in temperature the snow line at the end of the first decade of December passed south of Kiew to Kursk, Penza and to the north of Orenburg, and then entered the Asiatic territory of the Union. In the period from the second decade of November through the first decade of December, there was heavy rainfall particularly in the east and centre of the European territory.

According to the meteorological bureau of Ukraina, the condition of winter cereals at the beginning of December was good throughout the Union. This autumn there was hardly any excessive growth of seedlings. The recent rains in Ukraina provided reserves of sub-soil moisture. Weather was still fine at the beginning of December and assisted the later sowings.

America.

Argentina: Conditions during the present season have been very variable. The beginning of the season was generally unfavourable owing to the prolonged drought which made the preparation of the land and sowing difficult particularly in Córdoba Santa Fé, La Pampa and especially in the province of Buenos Aires. The condition of the crops was rather precarious up to mid-September, particularly in the first two provinces, where germination and growth were seriously affected by the extremely dry weather; in the province of Buenos Aires crop condition varied from average to good. Thereafter general rain fell and permitted, though late, sowing and resowing on land that had suffered most severely This is the explanation of the large increase between the first estimate of area sown published at the end of September and the two next estimates published on 28 October and 26 November. Repeated frosts at the end of October and in the first two weeks of November considerably damaged the crops, particularly in the province of Buenos Aires and some parts of Córdoba. Thus, in spite of the increase in the area sown to wheat this year (8 and 5 per cent. respectively) over 1936-37 and the previous five year average, this season's crop, according to the first estimate published by the Argentine Government, shows a decrease of 23 and 15 per cent. below last season and the average respectively. The corresponding decreases in production of other cereals are. rye 39.5 and 54 9 per cent; oats 11 4 and 17.9 and barley 16.9 and 13.1 per cent.

Wheat conditions have improved since the rains of 6 December, especially in the southern parts of Buenos Aires, but there is no improvement in the north of that Province where half the crops has been harvested In the southwest harvesting has begun and yields are poor.

In the province of Santa Fe yields are bad in the north but excellent in the south, the quality is good

In the province of Córdoba the yields are poor in the south, but in the east they are surprisingly good.

In Entre Rios harvesting is making normal progress and yields are generally good except in the north where there has been partial damage

In the Pampa yields are low in the north, but the quality is good. In the centre and south rains have improved the crop, except where it was affected by frost.

Canada: According to the most recent estimate, the area of meslin this year was about 1,128,200 acres against 1,172,800 acres in 1936 and an average of 1,171,700 acres in the five years ending 1935, percentages, 96.2 and 96.3 The corresponding production is estimated at about 16,375,000 centals (36,389,000 bushels) against 15,138,000 centals (33,639,000 bushels) and 17,004,000 centals (37,787,000 bushels), percentages, 108 2 and 96.3.

The area under buckwheat was about 395,500 acres against 398,000 acres in 1936 and 378,000 acres on the average of the five years ending 1935; percentages, 99 4 and 104.7. The corresponding production is estimated at about 3,611,000 centals (7,522,000 bushels) against 4,128,000 centals (8,601,000 bushels) and 4,339,000 centals (9,039,000 bushels); percentages, 87.5 and 83 2

United States: The area of winter wheat sowings for harvest in 1938 is estimated at 57,492,000 acres. Compared with the area sown a year ago, now estimated to have been 57,612,000 acres, this shows a decrease of 0 2 per cent but it is 25 4 per cent. above the average sown area of the five years ending 1935-36 (45,831,000 acres). The condition of the crop on 1 December was 76 per cent. of the normal against 75.8 last year.

The rye sowings this year are estimated at 6,860,000 acres compared with 7,593,000 acres last year and an average of 5,756,000 acres (percentages, 90.5 and 119.3). These estimates relate to the total acreage of rye sown for all purposes, including an allowance for spring sown rye.

The condition of the rye crop on 1 December was 75 per cent of the normal against 71 a year ago.

Asia

Palestine Weather conditions in November were normal, with good general rains and mild temperatures. Preparatory work and autumn sowings were carried out in excellent conditions Dry sowing (afir) was somewhat curtailed owing to early rains, but these left the land in perfect condition for ploughing for winter sown wheat Germination took place in very regular conditions

Africa

Algeria November was marked by very variable temperatures but generally fine, dry weather except at the beginning of the month, when it was wet in the west, the outflow from springs was very reduced at the beginning of the month Preparatory work and sowing were carried out in good conditions in the departments of Oran and Alger, but in the department of Constantine sowing had hardly begun at the end of November in certain European holdings and drought had prevented fieldwork, particularly on native holdings Sprouting was even and normal in the west in Oran, in Alger, seeds have not all germinated owing to drought

Egypt In spite of the delay in the preparation of the land and sowing caused by rainfall, especially at the end of October, the general sowing of the wheat crop was terminated in Lower and Upper Egypt while the late sowing was commenced The general sowing is still being carried out in Middle Egypt Irrigation of the early cultivations and manuring of a few fields are active Germination and growth are satisfactory. Sowing of the barley crop was in active progress during November, as most of the areas in the south of the Delta and Upper Egypt were sown, while the general sowing is progressing in the rest of the localities Germination and growth are satisfactory Harvesting of *nili* millet is general in Middle Egypt and it was begun in a few areas in Upper Egypt The yield per acre is expected to exceed the average slightly

French Morocco Crop condition was satisfactory at the beginning of December, brairds were vigorous and regular

Tunisia October and November were characterized by rather high temperatures at certain periods and by rather low minima at others Rainfall was slight in general and its inadequacy impeded sowing At the end of November, sowings were finished on European holdings in the north (Bizerta) but were not finished everywhere on native land. The same was true of the centre (Tunis and Kef) where it was estimated that 40 per cent of the area could not be sown in normal conditions In the south (Susa and Sfax) the sowings were reduced and owing to the lateness of the season an appreciable increase was not expected

In the centre and south, many European farmers had to sow on dry land In the north sprouting of European crops was variable according to district, good in Bizerta uneven but still satisfactory in Beja and poor elsewhere (Suk-el-Khemis and Suk-el Arba).

Union of South Africa Following the exceptionally dry winter this year, drought conditions were still prevailing in many parts of the Union on 1 November Winter cereals have mostly dried up or been fed off to stock, owing to lack of other feed, except in the south and south-west of Cape Province and parts of Transvaal Ploughing for summer crops was also delayed in many areas because the ground was too hard and dry

Current information on maize.

Area and production of maize.

Countries	Area					Production							
	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/1932 to 1935/1936	% 1937 — 1937/38		1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/1938	1936 — 1936/1937	Average 1931 to 1935 — 1931/32 to 1936/36	% 1937 — 1937/38	
				1936 — 1936/1937 = 100	Average = 100							1936 — 1936/1937 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels				
Albania . .	219	207	195	105.4	112.4	2,528	2,547	2,423	4,514	4,549	4,327	99.2	104.3
Austria . .	159	158	158	100.9	100.4	3,995	3,767	2,990	7,134	6,727	5,340	106.0	133.6
Bulgaria . .	1,653	1,653	1,757	100.0	94.1	18,491	19,213	19,952	33,020	34,310	35,629	96.2	92.7
*Spain . . .	...	...	1,076	...	...	...	...	15,640	...	..	27,929	...	...
France . . .	839	844	844	99.4	99.4	12,072	11,712	11,253	21,557	20,914	20,095	103.1	107.3
Greece . . .	1) 652	1) 639	1) 614	102.0	106.1	5,088	6,326	4,616	9,085	11,297	8,244	80.4	110.2
Hungary	2,956	2,810	2,812	105.2	105.1	59,347	57,168	40,898	105,977	102,086	73,033	103.8	145.1
Italy . 2)	3,168	3,236	3,246	97.9	97.6	74,957	60,133	53,968	133,853	107,380	96,372	111.4	128.1
Italy . 3)	458	445	344	102.9	133.0		7,133	4,568		12,737	8,156		
*Poland. . .	228	218	232	104.7	98.2	...	2,314	2,063	...	4,132	3,684	...	...
*Portugal . .	...	1,057	1,014	...	...	...	6,767	7,715	...	12,084	13,778	...	..
Romania . .	12,795	12,999	12,124	98.4	105.5	93,371	123,724	118,327	166,734	220,936	211,299	75.5	78.9
*Switzerland.	..	2	2	...	..	...	47	55	...	83	98	...	...
Czecho-slovakia 4)	239	211	6) 205	113.1	116.3	4,930	4,163	6) 3,060	8,804	7,433	6) 5,464	118.4	161.1
Czecho-slovakia 5)	217	192	6) 160	112.6	135.4	2,636	2,760	6) 1,614	4,707	4,928	6) 2,883	95.5	163.3
Yugoslavia	6,529	6,683	6,215	97.7	105.1	117,572	114,211	87,114	209,951	203,949	155,561	102.9	135.0
Total Europe	*29,884*	*30,077*	*28,674*	*99.3*	*104.2*	*394,987*	*412,857*	*350,783*	*705,336*	*737,246*	*626,403*	*95.7*	*112.6*
*U. S. S. R. .	7) 6,618	7) 6,799	9,181	97.3	72.1	...	...	86,463	...	. .	154,398	...	...
Canada .	166	164	145	100.7	113.9	3,636	3,406	3,374	6,492	6,083	6,025	106.7	107.8
United States	93,810	93,020	102,079	100.8	91.9	1,481,200	843,970	1,307,192	2,645,000	1,507,089	2,334,271	175.5	113.3
*Mexico .	...	...	7,786	...	...	...	...	41,597	...	...	74,281	...	...
Total N. Am.	*93,976*	*93,184*	*102,224*	*100.8*	*91.9*	*1,484,836*	*847,376*	*1,310,566*	*2,651,492*	*1,513,172*	*2,340,296*	*175.2*	*113.3*
*China . . .	...	11,506	11,185	...	..	...	*847,376*	138,958	...	241,333	248,140	...	..
*Manchukuo.	...	3,199	2,736	...	...	45,856	46,772	38,313	81,886	83,522	68,416	98.0	119.7
*Palestine	...	...	8) 12	. .	...	...	...	8) 64	...	...	114	...	...
*Syria & Leb.	...	37	59	...	..	..	402	585	...	719	1,045	...	...
Turkey. . .	9) 988	1,041	987	95.0	100.2	13,075	15,120	10,673	23,349	27,000	19,059	86.5	122.5
Total Asia	*988*	*1,041*	*987*	*95.0*	*100.2*	*13,075*	*15,120*	*10,673*	*23,349*	*27,000*	*19,059*	*86.5*	*122.5*
*Algeria . .	..	16	21	...	...	...	77	126	. .	137	225	...	...
*Egypt 10)	1,597	1,570	1,819	101.8	87.8	...	34,990	37,981	. .	62,483	67,823	..	...
*Egypt 11)	...	9	10	...	...	...	181	181	...	323	324	..	...
*Eritrea . .	...	20	26	...	...	...	90	214	...	161	382	...	...
*Kenya 12) .	...	...	136	...	...	2,238	1,727	1,852	3,997	3,084	3,307	129.6	120.8
French Morocco . . .	1,087	1,124	911	96.7	119.4	2,932	6,644	3,443	5,236	11,865	6,148	44.1	85.2
*Italian Somalia . .	...	. .	30	...	...	...	220	322	...	394	574	. .	...
Tunisia 13).	67	44	48	150.0	139.3	132	77	130	236	138	232	171.4	101.7
Total N. Afr.	*1,154*	*1,168*	*959*	*98.7*	*120.7*	*3,064*	*6,721*	*3,573*	*5,472*	*12,003*	*6,380*	*45.6*	*85.7*
*Argentina 1)	...	(15,973)	(16,266)	...	...	—	—	—	—	—	—	—	—
*Argentina 14)	...	11,930	11,152	...	...	...	201,387	187,441	...	359,621	334,718	...	...
*Chile. . . .	...	121	121	...	...	...	1,495	1,521	...	2,670	2,717	...	...
*Un. of S. Afr.	...	12) 5,808	12) 5,839	...	...	...	49,626	33,975	...	88,618	60,669	..	..
Totals . .	**126,002**	**125,470**	**132,844**	**100.4**	**94.8**	**1,895,962**	**1,282,074**	**1,675,595**	**3,385,649**	**2,289,421**	**2,992,138**	**147.9**	**113.2**

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* Not included in the total. — 1) Area sown. — 2) Maize sown in spring. — 3) Maize sown in summer. — 4) Crop grown alone. — 5) Mixed crop. — 6) Average 1934 and 1935 — 7) Area fixed by the plan. — 8) Average 1931 to 1933 and 1935. — 9) Unofficial figure. — 10) *Nili* maize. — 11) *Sefi* maize. — 12) Cultivation by Europeans. — 13) Maize and sorghum. — 14) Area harvested.

Greece The late-sown maize harvest was finished almost everywhere at the middle of November.

Argentina (telegram of 17 December). Crop condition of maize was good, but the growth of the plants was retarded.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area

	1937 acres	1936 acres
Area harvested in October	318,300	385,000
Area harvested from 1 January to 31 October	4,400,700	1,801,100
Area of standing crops at the end of October .	1,460,700	1,703,800

Egypt Harvesting of *nili* maize is approaching termination in Lower Egypt, it is general in Upper Egypt. Stripping, drying and storing are in progress The yield per acre is expected to be about 4 per cent above the average.

Union of South Africa · Following the exceptionally dry winter this year, prospects for the maize crop are poor Ploughing has been delayed in many parts because the ground is too hard and dry.

Current information on rice.

British Guiana It was reported in October that reaping of the autumn rice crop had begun and good yields were being obtained

Area and production of rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38		1937/38	1936/37	Average 1931/32 to 1935/36	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38	
				1936/1937 = 100	Average = 100							1936/1937 = 100	Average = 100
	1,000 acres					1 000 centals			1,000 bushels of 45 lb				
Bulgaria .	14	22	18	64 4	77 0	272	457	345	605	1,015	767	59 5	78 8
Italy .	344	358	340	96 1	101 4	17,284	16,181	15,074	38,409	35 957	33,456	106 8	114 7
Yugoslavia	1) 9	1) 9	1) 6	105 7	152 2	.	63	74		140	165		
United States	1,093	935	857	116 9	127 5	23 852	21,075	18,154	53 004	46,833	40,343	113 2	131 4
Burma	2)12,725	12,108	12,666	105 1	100 5	2)173,065	158,381	160,224	2)384,588	351,951	356,047	109 3	108 0
Chosen	4,015	3,924	4,128	102 3	97 3	107,778	79 251	69 570	239,502	176,111	154,598	136 0	154 9
India 3) .	64,846	65,125	63,372	99 6	102 3		950,253	870,058	.	2,111,632	1,933,424		. .
Indo-China													
Annam (1st semester)	4) 799	1,006	943	79 4	84 8	4) 6 621	9,293	7,684	4) 14,712	20,650	17,075	71 2	86 2
Tonkin (5th month) . .	6) 1,049	1 256	1,198	83 6	87 6	6) 11,875	13,390	13 407	6) 26,388	29,756	29,792	88 7	88.6
Japan	7,874	7,859	7,870	100 2	100 1	269 145	275 547	242,010	598 088	612,313	537,789	97 7	111 2
Taiwan 5)	727	745	706	97 6	102 9	18,051	19 389	16,881	40,112	43,085	37,512	93 1	106 9
Egypt. .	269	489	378	55 1	71 2	...	15,275	10,475	. .	33,943	23,277	..	...

1) Area sown — 2) Third report — 3) First report — 4) Preliminary data. — 5) Final estimate — 6) First crop.

Burma (Telegram of 20 December): According to the third forecast, 12,748,000 acres were sown, of which 23,120 acres were damaged, leaving the area likely to mature at 12,725,000 acres. Production is estimated at 12,859 million pounds of rice and rice products. The exportable surplus is estimated at 7,728 million pounds of rice and rice products, an increase of 19 0 per cent. on the 6,496 million of last season and an increase of 7 5 per cent. on the average of 7,190 million pounds for the five seasons ending 1935-36. It is expected, however, that the unusual late rains will diminish the quantity and quality of the exportable surplus, though the damage has not yet been estimated.

Taiwan· Second crop rice was growing in satisfactory conditions.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area

	193 acres	1936 acres
Area harvested in October —		
Wet padi	306 200	311,900
Dry padi	2,000	1,500
Area harvested from 1 January to 31 October —		
Wet padi	8,168,200	8,237,600
Dry padi	959,800	972,400
Area of standing crops at the end of October —		
Wet padi	793,500	720,500
Dry padi	208 800	238 200

British Malaya Rainfall in October was generally below the average for the month except in localized areas of Negri Sembilan Planting operations progressed very actively in Kedah, Province Wellesley and Krian they were uncompleted in Penang The prospects of the crop in Kedah were reported to have been made still worse by the fact that the fungus diseases which damaged much of the crop last season had reappeared in some areas Through much of northwest Krian the crop looked fairly promising but was very backward and irregular in the southeast of the district Prospects were good in Penang, while the crop was generally late in Perak, except in the Sungei Manik area of lower Perak where prospects were generally more promising than last season In some areas of Selangor dry weather had somewhat delayed planting, but water supplies in October were sufficient to enable planting to be done Crop prospects were fairly good in Negri Sembilan and in Malacca, although in Malacca planting was rather later than usual In Penang the dry weather of August and September had a bad effect on the crop in some parts of Lipis district, but prospects were fairly good elsewhere except in Temerloh district where the planted area was reported to be much smaller than last season In Kelantan, prospects for both dry and wet padi were better than last season

Siam The area cultivated with rice was estimated at the end of October to be approximately 7,187,000 acres, an increase on the preceding month of 675,200 acres Last year at the corresponding time the cultivated area was 6,865,000 acres, indicating an increase in this year's cultivated area over last year's of 322 000 acres The total damaged area is about 608,000 acres, an increase on the preceding month of 213,000 acres, while the corresponding report last year gave the damaged area at 856,000 acres or 248,000 acres more than this year The percentage of this damaged area to the area planted is calculated at 8 5 as compared with 12 5 per cent at the same time last year The crop at the beginning of November was reported to be doing well in 25 provinces, fairly well in 29 provinces and to be unsatisfactory in 5 provinces One province has not reported

Egypt Harvesting of summer rice (sefi) is over and threshing is approaching termination It is expected that the yield per acre will be about 7 per cent above the average of the last five years Harvesting of autumn rice (nili) is terminated in the general cultivations and harvesting of the late cultivations, threshing and storing are progressing. The yield per acre exceeds the average by 2 per cent

Madagascar According to the most recent estimate, the area cultivated to rice during the year 1936-37 was about 1,200,000 acres against 1,297,000 in 1935-36 and 1,354,000 on the average of the five years ending 1934-35, percentages, 92 5 and 88 6 The corresponding production of paddy is estimated at about 15,000,000 centals (33,300 000 bushels) against 13,900,000 (20,900,000) and 15,375,000 (34,166,000), percentages 107 9 and 97 5

World potato production.

The information received by the Institute since the publication of the November report bears out the optimistic description of the results of the 1937 crops given in that issue

Germany further increased its previous high estimate by 60,000,000 centals (99,000,000 bushels). This is the highest figure recorded hitherto.

Austria increased its estimate by about 11,000,000 centals (18,000,000 bushels) and England and Wales, Scotland and Latvia also made upward, if smaller, revisions Denmark has just issued an estimate showing that the crop is larger than last year's and the average. In France the crop though it fails to reach either last year's figure or the five-year average, is better than it was expected to be

The small reductions made by Italy and the United States hardly change the total results. World production, excluding the U. S S R., for which estimates are as yet unavailable, now reaches 3,489 million centals (5,815 million bushels) against 3,127 million (5,212 million) in 1936 and an average of 3,014 million (5,023 million) in the preceding five years, percentages, 111.6 and 115.8.

Area and production of potatoes.

Countries	Area					Production							
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100							1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 60 lb.				
*Albania	...	1)	1	...	...	...	22	22	...	36	37	...	...
Germany s)	320	332	548	96.4	58.4	37,846	35,928	56,813	63,075	59,878	94,686	105.3	66.6
Germany t)	6,816	6,569	6,495	103.8	105.0	1,181,529	985,336	925,352	1,969,175	1,642,194	1,542,222	119.9	127.7
Austria	538	519	496	103.7	108.3	70,989	52,220	56,790	118,313	87,032	94,648	135 9	125.0
*Belgium	392	396	413	99.2	95.1	...	71,109	79,253	...	118,512	132,086	...	...
Bulgaria	43	39	35	109.5	123.7	2,968	2,398	1,844	4,946	3,996	3,074	123.8	160.9
Denmark	200	187	179	106.9	111.7	29,542	28,407	26,885	49,236	47,343	44,808	104.0	109.9
*Spain	...	...	1.087	...	...	...	...	109,215	...	...	182,022	...	...
Estonia	187	183	172	102.0	108.4	20,198	22,721	19,274	33,663	37.868	32,122	88.9	104.4
Finland	230	215	197	107.0	116.7	29,498	29,158	24,919	49,162	48,596	41,531	101.1	118.7
France	3.512	3,513	3.487	100.0	100.7	324,571	336,227	346,473	540,941	560,367	577,444	96.5	93.
*Greece	58	48	42	119.4	137.7	s) 1,420	2,844	2,085	s) 2,367	4,740	3,475	—	—
Hungary	731	733	715	99.7	102.2	57,299	54,042	36,914	95,497	90,068	61,522	106.0	155.2
*Irish Free State	...	334	343	...	...	...	54,232	56,298	...	90,387	93,829	...	...
Italy	965	979	1.004	98.6	96.1	63,312	52,422	53,116	105,517	87,368	88,524	120.8	119.2
Latvia	314	296	266	106.1	118.2	39,287	35,527	29,461	65,476	59,210	49,101	110.6	133.3
Lithuania	456	450	435	101.4	104.9	55,319	45,751	44,120	92.196	76,250	73,532	120.9	125.4
Luxemburg	41	41	41	100.0	100.9	4,904	4,411	4,170	8,173	7,352	6,950	111.2	117.6
*Malta	...	10	7	...	...	...	570	541	...	951	902	...	...
Norway	128	127	120	100.6	106.5	20,109	20,852	19,855	33,514	34,753	33,092	96.4	101.3
Netherlands	336	322	384	104.3	87.5	55,116	55,260	66,669	91,858	92,099	111,113	99.7	82.7
Poland	7,360	7,150	6,821	102.9	107.9	833,350	755,776	684,604	1,388,889	1,259.601	1,140,984	110 3	121.7
*Portugal	...	78	79	...	...	...	11,391	13,075	...	18,985	21,791	...	...
*Romania	...	535	490	...	...	...	42,823	38,101	...	71,370	62,500	...	...
United Kingdom:													
England & Wales	455	457	484	99.7	94.0	70,022	63,034	69,700	116,704	105,056	116,166	111.1	100 5
Scotland	135	133	140	101.8	96.6	20,653	22,176	21,634	34,421	36,960	36,057	93.1	95.5
*Northern Ireland	125	132	136	95.2	92.0	...	17.576	20,527	...	29,293	34,212	...	...
Sweden	329	330	328	99.7	100.3	38,956	40,260	41,253	64,925	67.098	68,753	96.8	94.4
Switzerland	121	117	114	103.4	105.7	17,970	12,521	16,580	29,949	20,868	27,633	143.5	108.4
Czechosl. s)	103	104	96	99.3	108.0	7,394	8,995	6,883	12,323	14,991	11,472	82.2	107 4
Czechosl. t)	1,803	1,772	1,728	101.8	104.3	231,068	226,939	189,133	385,105	378,224	315,215	101.8	122.2
*Yugoslavia	...	648	612	...	...	..	35.892	31,593	...	59.818	52,654	...	...
Total Europe	*25,123*	*24.568*	*24.285*	*102.3*	*103 4*	*3,211,900*	*2,890,361*	*2.742.442*	*5.353,058*	*4.817.172*	*4.570,649*	*111 1*	*117 1*
*U S S R.	..	18,723	15,539	...	...	...	...	1,137,469	...	...	1,895,743	...	...
Canada	531	496	543	107.0	97.7	42,633	39.034	44,246	71,055	65.057	73,744	109.2	96.4
United States	3,177	3,058	3,513	103.9	90.4	234.695	197,998	227,441	391,159	329,997	379,068	118.5	103 2
*Palestine	...	4	1	...	...	...	198	55	...	331	91	...	...
*Syria and Lebanon	...	17	18	...	...	...	880	887	...	1,467	1,478	...	...
*Turkey	...	130	108	...	...	...	3,956	2,676	...	6,593	4,460	...	..
*Algeria s)	18	17	20	105.3	89.7	...	1,005	896	...	1,675	1,493	...	...
*Algeria t)	20	24	23	81.8	87.1	...	1,549	1,127	...	2,582	1,878	...	...
*Tunisia	...	6	5	...	...	...	209	130	...	349	217	..	...
*Eritrea	...	1)	1)	...	...	...	4	6	...	7	9	...	...
*Chile	...	126	128	...	...	...	9,816	10,313	...	16,359	17,188	...	...
Totals	**28,831**	**28,122**	**28,341**	**102.5**	**101.7**	**3,489,228**	**3,127,393**	**3,014,129**	**5,815,272**	**5,212,226**	**5,023,461**	**111.6**	**115.8**

s) Early crop. — t) Late crop. — *) Countries not included in the totals — 1) Less than 1,000 acres.

Current information on potatoes.

Greece: Owing to floods in Eubea, Crete and Naxos (Cyclades) production of potatoes this year is reported as slightly lower than last year, despite a considerable increase in the acreage.

Irish Free State: The potato yield was rather below average.

United Kingdom: The potato harvest was completed under favourable conditions in England and Wales. The quality and keeping condition of the crop is good generally. Production is 11 per cent. larger than last year's and equal to the five-year average.

Palestine: Autumn sown potatoes under irrigation are developing well.

Algeria. The main potato crop was estimated as average, although the acreage is much reduced Early crops—winter crops - had suffered from drought in unirrigated land.

Sugar production in 1937-38.

The lifting of the remaining sugar-beet in some central and northern European countries was considerably facilitated by the generally dry weather conditions of November. Sugar manufacturing is now in full swing and in some countries, including Hungary, Finland, Italy and Sweden, it is finished With the progress of liftings and transport to the factories, it is observed that the beet crop in many countries surpassed expectations in yield and, frequently, in sugar content.

In accordance with fresh information, increases have been made in the figures of sugar production in Bulgaria, Denmark, France, the Netherlands, Poland and Sweden while reductions have been made in those of the United Kingdom and Yugoslavia. In the light of information received from the U. S. S. R., the estimate for that country made two months ago will not be changed. When these modifications are taken into account, the total production of Europe, including the U. S. S. R., is seen to be 1,200,000 centals (60,000 sh. tons) above the estimate of last month. It is 10 per cent above last year's production and 27 per cent. above the average of the preceding five years.

As for overseas countries, a slight reduction has been made in the first estimate of sugar production in the United States owing to a slight deterioration in the condition of the beet crop.

World production of beet sugar, as a result of these modifications, is 8 per cent. above the outturn of 1936-37 and 23 per cent. above the average.

* * *

Up to the present, only a minority of the cane-sugar producing countries have issued estimates of probable production in 1937-38. However, information is available for several countries, including some of the main producers. This will give a preliminary, if approximate, idea of the production of the year.

In Cuba, it is anticipated at present that production in 1937-38 will be practically the same as that of 1936-37. The same is true of the Dominican

Production of beet-sugar (raw).

COUNTRIES	PRODUCTION (1 Sept -30 November) 1937-38	1936-37	TOTAL PRODUCTION DURING THE SEASON 1937-38 1)	1936-37	Average 1931-32 to 1935-36	% 1937-38 1936-37 = 100	Average = 100
	Thousand centals						
Germany	2) 13 158	2) 12,063	46,609	39 836	32,914	117	142
Austria	2 509	2,550	3,351	3,229	4,087	104	82
Belgium	4,930	4,714	5,313	5,317	5,308	100	100
Bulgaria	588	212	595	246	505	242	118
Denmark	.		5,423	4,987	3,841	109	141
Spain			4,519	4,982	6,006	91	75
Finland	165	187	220	242	165	91	134
France	2) 569	2) 523	20,686	19,191	21,930	108	94
Hungary		.	2,647	3 170	2,649	84	100
Irish Free State	836	748	2,066	2,148	1,014	96	204
Italy	7 628	7 585	7,628	7,585	7,422	101	103
Latvia	781	680	1,058	936	798	113	133
Lithuania	485	271	650	596	313	109	208
Netherlands	4,848	4,699	4 960	5,175	5,002	96	99
Poland	2) 3 760	2) 2 958	12 345	10,108	9,452	122	131
Romania	2) 459	2) 453	1,918	1,737	2,243	110	85
United Kingdom	6 351	7,255	10 141	12,991	10,299	78	98
Sweden	--	—	7 165	6,596	5,512	109	130
Switzerland			265	198	177	133	150
Czechoslovakia	16 117	15,627	16,360	16,019	14,063	102	116
Yugoslavia			838	2,221	1,749	38	48
Total Europe a)	—	—	*154 757*	*147,510*	*135,449*	*105*	*114*
U S S R	32 600	24 900	55,116	44,071	29,733	125	185
Total Europe b)	—	—	*209 873*	*191,581*	*165,182*	*110*	*127*
Canada	—	—	1,213	1,725	1,374	70	88
United States	—	—	28 660	27,911	27,893	103	103
Total North America	—	—	*29 873*	*29,636*	*29,267*	*101*	*102*
Japan	—	—	1,168	1,069	675	109	173
Turkey	—	—	1,323	1,453	1,066	91	124
Total Asia	—	—	*2,491*	*2,522*	*1,741*	99	*143*
GENERAL TOTALS a)	—	-	**187,121**	**179,668**	**166,457**	**104**	**112**
GENERAL TOTALS b)	—	—	**242,237**	**223,739**	**196,190**	**108**	**123**

a) Not including U S S R — *b)* Including U S S R — 1) Approximate data — 2) Production to the end of October

Republic, Java and the Philippines An increase of about 10 per cent over last year is expected in Brazil, Taiwan and the Union of South Africa, 6 per cent in Mauritius, and 5 per cent. in Hawaii On the other hand, a reduction of 5 per cent. is expected in Puerto Rico and Australia, of 10 per cent. in Peru and 15 to 20 per cent. in Argentina. With these proportions as a basis, there is ground for believing that the total production of these countries, which, taken together, produce about two-thirds of the world output of cane-sugar, will be about equal to that obtained in the year which is now closing. It is not likely that the changes in other countries will substantially affect the proportions mentioned above.

E. R.

Current information on sugar.

Belgium. Yields of sugar-beet are not very high, but their sugar-content is above average so that sugar production per acre will be hardly less than last year.

France. Unit yields of beet are slightly above those of last year and sugar content is generally higher so that production of sugar will be somewhat larger than last year despite the small decline in area cultivated.

United Kingdom. The greater proportion of the sugar-beet crop in England and Wales was lifted under good conditions. The crop generally is satisfactory, and, although the roots are on the small side the average sugar content is reported to be high. Pests do not appear to have been much in evidence and bolters are reported to be less prevalent than usual. The yield per acre is at present expected to be about 180 centals per acre (9 short tons).

Area and production of sugar-beet.

COUNTRIES	AREA 1937	AREA 1936	AREA Average 1931 to 1935	AREA % 1937: 1936 = 100	AREA % 1937: Average = 100	PRODUCTION 1937	PRODUCTION 1936	PRODUCTION Average 1931 to 1935	PRODUCTION 1937	PRODUCTION 1936	PRODUCTION Average 1931 to 1935	PRODUCTION % 1937: 1936 = 100	PRODUCTION % 1937: Average = 100
	1,000 acres					1,000 centals			1,000 short tons				
Germany 1)	958	961	833	99.7	115.0	308 945	266,668	213,654	15 447	13,333	10,683	115.9	144.6
Austria	100	93	111	106.8	89.5	21 524	20 117	24 802	1,076	1 006	1 240	107.0	86.8
Belgium	118	117	131	100.5	90.4	.	32,880	35 019		1,644	1 751		
Bulgaria	25	13	23	184.1	109.9	3 979	1 765	3,779	199	88	189	225.4	105.3
Denmark 2)	102	94	105	107.7	96.8	48 943	40,052	30,312	2 447	2,003	1,516	122.2	161.5
Finland	8	8	6	106.0	129.0	1,874	1,830	1,381	94	91	69	102.4	135.7
France 3)	712	769	770	92.6	92.6	168 760	182 023	187 168	8 438	9 101	9,358	92.7	90.2
Hungary	117	122	114	96.1	102.1	24,313	24,790	19 624	1 216	1,239	981	98.1	123.9
Italy	317	299	230	105.8	137.7	73 069	58,021	53 300	3 653	2,901	2 665	125.9	137.1
Latvia	.	29	28				2) 5,177	4,683	.	2) 259	234		
Lithuania	20	17	11	114.3	173.5		3,758	1,976		188	99		
Netherlands	103	106	103	97.8	100.3	31,218	36,117	34,492	1,561	1,806	1,725	86.4	90.5
Poland	365	300	294	121.6	124.2		56,938	53,172		2,817	2,659		
United Kingd.:													
England and W.	307	349	323	87.9	94.9		75,869	65,145		3,793	3,257		
Scotland	7	7	4	107.7	199.2	1 523	1,525	732	76	76	37	99.9	208.0
Sweden	126	127	113	99.3	111.9	40 367	39,675	35 261	2,018	1,984	1,763	101.7	114.5
Switzerland		4	4	.			1,433	1,249		72	62		
Czechoslov.	447	381	391	117.4	114.3	131 992	104,928	88 225	6 599	5,246	4,411	125.8	149.6
Yugoslavia		75	85				13,617	12 852		681	643		
U. S. S. R.	4) 2,943	3,104	3,238	94.8	90.9	465 177	371 039	243,261	23 259	18,552	12,163	125.4	191.2
Canada	47	56	49	83.8	95.0	8 380	11 900	9,262	419	595	463	70.4	90.5
U. S. A.	759	776	799	97.8	95.0	175 960	180 560	173,720	8 798	9,028	8,686	97.5	101.3

1) Not including crops for seed. 2) Sugar beet for factories. 3) Including beets for distilling (averaging 108,000 acres and 28,504,000 centals or 1,425,000 sh. tons from 1930 to 1934). 4) Area estimated by the Plan.

Barbados. Although fine rains fell throughout the island in October, it was expected that owing to previous dry weather the coming sugar crop would be short.

British Guiana. It was reported in October that weather was seasonable for the cane grinding, which was general on all the estates.

St Kitts. Good showers fell in October and the sugar canes greatly improved.

Trinidad According to the most recent estimate, production of cane sugar in 1936-37 was 3,456,000 centals (172,800 short tons) against 3,464,000 (173,200) in 1935-36 and 2,419,000 (121,000) on the average of the five years ending 1934-35, percentages 99.8 and 142.8.

Taiwan: Cane in old plantations was in satisfactory conditions Growth in young plantations was normal.

Egypt: Growth and maturation progress satisfactorily in early and general cultivations Irrigation and harvesting of the areas devoted of the local consumption are active The crop condition is normal

Madagascar: According to the most recent estimate, the area cut for the 1937-38 crop is about 34,800 acres against 34,600 in 1936-37 and 30,000 on the average of the five years ending 1935-36 percentages, 100.7 and 116.1. The corresponding production of sugar cane is estimated at about 5,595,000 centals (279,800 short tons) against 6,173,000 (308,600) and 4,056,000 (202,800) percentages, 90.6 and 137.9

A rather important part of the sugar cane crop is directly consumed by the natives The production of cane sugar this year is about 282,000 centals (14,100 short tons) against 243,000 (12,100) in 1936-37 and 193,000 (9,600) on the average of the five years ending 1935-36, percentages, 116.4 and 146.3

Mauritius In October the sugar crop reports continued to be satisfactory, but it was stated that late rains would probably reduce the expected outturn

World wine production in 1937-38.

While production estimates are still incomplete, the available information on crop results is sufficiently extensive and precise to permit a fairly exact estimate of total world production of wine for 1937-38

The crop declarations for France and Algeria give figures distinctly above the pessimistic forecasts made in mid-October toward the end of the vintage. The figure for Algeria is given in the accompanying tables In France it seems, the total of crop declarations will be in the close neighbourhood of 1,100 million Imperial gallons (1,300 million American gallons) still over 20 per cent below the five-year average but very appreciably exceeding, by about 200 (250) millions or 20-25 per cent, last year's figure and also exceeding the previous minima of 1926 and 1936 French production in 1937 should thus be of the same order as in 1927, 1932 and 1933.

The total production of France and its North African dependencies Algeria, Tunisia and Morocco - should be fairly close to 1,500 (1,800) million gallons, taking account of quantities not declared which were last year relatively large, against 1,262 (1,504) million in 1936, 1,831 (2,199) million on the average of the five years from 1931 to 1935 and 1,437 (1,725) million in 1926-30.

On the other hand, Italy records a decrease of 53 (63) million gallons on the forecast made at the end of September and the present crop would thus appear to be as mediocre as last year's and scarcely more than 10 per cent. above the previous minimum of 1934. Judging from the partial and unofficial information in the accompanying table, the production of Spain will be about average and in any case larger than last year, when it seems to have been about 290

Area and production of vines for wine

COUNTRIES	AREA BEARING					PRODUCTION OF WINE				
	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 936/37 = 100	% 1937 — 1937/38: average = 100	1937 — 1937/38	1936 — 1936/37	Average 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 936/37 = 100	% 1937 — 1937/38: average = 100
	1,000 acres					1,000 Imperial gallons				
Germany	183	179	178	102 0	102 9	† 55 480	† 72 930	† 66,253	76 1	83 7
Austria	76	76	68	100 3	112 1	18 764	20 040	24,991	93 6	75 1
Bulgaria		1) 235	1) 217				18 151	33,216		
Spain 2)	(2,018)		(2 362)		—	(227 700)		(250 065)		—
			3 358					† 434 590		
France 3)	(1 162)	(1 163)	(1 178)	(100 0)	(98 7)	(456 907)	(392 686)	(597 116)	(116 4)	(76 5)
		3,734	3,820				960 965	1 385 301		
Greece	4) 391	4) 376	4) 350	103 9	111 5	† 70 719	† 42 213	† 79 854	167 5	88 6
Hungary		5) 501	5) 504				† 99 845	† 70 127		
Italy main crop	2 364	2,355	2 440	100 4	96 9	740 200	740 225	846 066	100 0	87 5
Italy sec crop	6) (7 304)	6) (7 327)	6) (7,313)	(99.7)	(99 9)					
Luxemburg	2	2	3	101 1	97 7	† 1 100	† 1 525	† 1,724	72 1	63 8
Malta		2	2				398	741		
Portugal	—	—	7) 867	—	—		81 587	173 604		
Romania		—	8) 675	—			147 531	190 233		
Switzerland		33	32				11 131	13 638		
Czechoslovakia	9) 64	9) 62	9) 51	103 7	126 6		11 543	9 489		
Yugoslavia		528	490				85 028	92 469		
Total Europe § 10)		*14 200*	*14 300*				*2 570 000*	*3 398 000*		
United States 11)		178	183					99 517		
Cyprus		123	119				3 458	2 940		
Ital Aegean Isl			5					12) 350		
Palestine	—	—	—	—	—		497	599		
Syria & Lebanon		17	8				12) 1 225	12) 514		
Turkey	—	—	—	—	—			12) 900		
Total Asia §	—	—	—	—	—			*5 300*		
Algeria	964	965	902	99 9	106 9	339 942	253 565	404 118	134 1	84 1
French Morocco		47	30				5 939	9 811		
Libya	13) (27)	13) (20)	13) (17)	(136 1)	(160 0)	660	704	388	93 7	170 3
Tunisia	105	105	102	100 0	102 7	31 982	31 061	31 861	103 0	100 4
Total North Africa		*1 110*	*1 040*				*291 269*	*446 178*		
Argentina			405				14) 174 577	121 459		
Brazil		107	109				19 760	16 549		
Chile			15) 215					61 977		
Peru			37					2 200		
Uruguay			36					11 031		
Total South America		*740*	*750*					*213 220*		
Union South Africa	—	—	—	—	—			26 129		
Australia			47				19 235	15 719		
TOTALS § 10)		16,400	16,400				3,340,000	4,204,000		

§) The totals are approximate either because they are based on approximate estimates in the absence of other data or because some data of the area and production were obtained by means of average coefficients

† Must — The coefficients used for calculating the totals are 93 per cent for Germany, 97 5 per cent for Spain, 94 per cent for Greece, Hungary, Luxemburg

1) All vineyards, including 5 000 to 15 000 acres of vines for table grapes — 2) Incomplete figures the figure for 1937 is not an official one and is not absolutely comparable with the average 1931 to 1935 — 3) Incomplete figures crop declarations in the four most important *départements* 4) Including the area not bearing 37 000 acres in 1936, 5,000 acres in 1931 1935 5) Including vines for table grapes 30 000 acres in 1931 1935 — 6) Vines occupy about 1/8 of this area — 7) 19[illegible] figure for all vineyards 8) 1932 figure for all vineyards — 9) Total area for all vineyards The area of vines in bearing for wine grapes was 42,000 acres in 1931/1935 — 10) Not including U S S R (90 to 110 million gallons) — 11) The area is that of vines of wine varieties The production includes both that of wineries and home production which is also obtained from grapes not harvested from the vines above indicated — 12) Not including the quantities used for making brandy, most important in Turkey (4 000,000 to 7,000,000 gallons) — 13) For the greater part as mixed crop — 14) Unofficial figure — 15) Including vines for table grapes

(340) million gallons. While the available information for Portugal still indicates a crop larger than last year's, though much below the average, the first official estimate for Greece greatly exceeds the very pessimistic information given at the beginning of October.

In all, the production of these four countries having a large export would thus, taking the very rough evaluation of the Spanish crop at its face value, be about 1,300 (1,570) million gallons against rather less than 1,100 (1,300) million last year, 1,530 (1,830) million on the average for 1931-35 and 1,520 (1,820) million for 1926-30.

It is confirmed, on the other hand, that the production of the Danubian lands is generally small, below that of last year in Romania, Yugoslavia and Hungary, in all by about 45 (55) million gallons, the present crop would thus be scarcely 75-80 per cent. of the 1931-35 average and practically the same as the 1926-30 average. The Central European crop – in Austria, Czechoslovakia, Germany and Switzerland – is also mediocre, below that of last year and the five-year average of 1931-35 though 20 (25) million gallons above the 1926-30 average.

Production of wine in the United States cannot yet be estimated but everything – the abundant crop, the large shipments of wine grapes and the increase in consumption — leads to the expectation that it will be very large

Taking into account all these elements and the small Asiatic production, total production of wine in 1937 in the northern hemisphere, excluding the Soviet Union, may be estimated at from 3,300 (4,000) and 3,500 (4,250) million gallons. This means that it will rather exceed that of last year, which was 2,970 (3,570) million, by about 400 (500) million and that it is much below the five-year average of 1931-35, which was 3,960 (4,760) million and practically the same as the average of 1926-30, which was 3,410 (4,090) million gallons

For the southern hemisphere the available information gives grounds for expecting that production will not reach the large figure of 310 (370) to 330 (395) million gallons obtained at the beginning of 1937, owing to the rather serious frost damage suffered by the Argentine crop.

World production of wine in 1937-38, not including the Soviet Union, would seem to be between 3,500 (4,200) and 3,750 (4,500) million gallons against 3,340 (4,010) million last year, 4,20 (5,050) million on the average of the five years ending 1935-36 and 3,680 (4,410) million in the five years ending 1930-31.

Current information on vines.

France: November was generally favourable to work in the vineyards, which was everywhere progressing in good conditions at the end of the month, the first fortnight of December was, on the other hand, rainy but good dry weather became dominant toward 15 November. Maturing of the wood occurred in good conditions in the south and in Bordelais and pruning began in these areas at the end of November

According to the most recent estimate, production of table grapes this year is about 3,636,000 centals against 2,764,000 in 1936 and 2,814,000 on the average of the five years ending 1935; percentages, 131 6 and 129 2.

Italy The following are the final figures for the production of vineyards in 1937 compared with those of 1936 and the average of 1931-35.

	1937	1936 1,000 lb.	Average 1931-35	% 1937 1936 = 100	% 1937 Average = 100
Grapes for wine	11,515,572	11,480,831	12,996,117	100.3	88.6
Grapes for immediate consumption . .	434,250	453,669	496,793	95.7	87.4
Table grapes	241,242	229,129	270,000	105.3	89.3
Grapes for raisins	3,693	3,148	17,068	117.3	21,6
Raisins	(1,191)	(1,001)	(5,533)	119,0	21.5
Total . . .	*12,194,757*	*12,166,777*	*13,779,973*	*100.2*	*88.5*
comprising.					
from unmixed crops . .	6,246,140	6,156,480	7,360,586	101.5	84.9
from mixed crops . . .	5,948,617	6,010,297	6,419,392	99.0	92.7

Yugoslavia The expectation that production will be smaller than last year's, which was itself not very plentiful, and the poor production of plums, have given rise to a strong demand for eau-de-vie and white wines of the new crop. Notwithstanding the sufficient stocks of old wines, prices of wines have increased considerably, particularly those of white wines (200 per cent.) As a result of this firmness, sellers are showing reserve and good quality wines are now finding buyers at prices never attained during the last ten years.

Algeria The crop declarations were satisfactory in Oran where production is 68 per cent larger than last year's and only 3 per cent below the average of the previous five years. In the other two *departements*, results are mediocre the decrease from the average amounting to 29 per cent. It is to be noted that there has been no appreciable contraction in the bearing area since last year and that the decline from the 1935 record is slight (37,000 acres, or less than 4 per cent.) As for average productivity, this decrease is more than offset by the normal growth in productivity of the plantings made up to 1932 1933. The exports of table grapes were 157,000 centals against 135,000 centals in 1936 and a 1931-35 average of 203,000 centals (116 and 77 per cent.) Condition of vines on 1 December was average. In Alger, particularly in Kabylia, the vines have not completely lost their leaves and ripening was insufficient to allow pruning. In Oran and Constantine, the shedding of leaves was early and, in the former, pruning began at the end of November.

Tunisia At the end of November, picking was in progress and cutting had begun in many vineyards.

Current information on olives.

France Harvesting continued to the end of November. In some districts, especially in the *département* of Drôme it appears to be rather mediocre both quality and quantity.

Greece: The olive crop, which is reported as very large this year, particularly in Mytilene, Crete and Corfu coincides with a good world production of olive-oil. The prices of olive-oil, which recently were quite high on the world market, have recently begun to drop, affecting also the price of Greek olive-oil, which at the beginning of November had also begun to drop in spite of all the Government measures taken to maintain it.

Italy: In the first fortnight of November the harvest of olives was begun. Heavy shedding was caused by attacks by flies. Crushing was in progress with variable yields. Attacks of fly, particularly in south Italy and in the islands, together with winds, aggravated shedding in the second half of November. Gathering recently has been seriously impeded by rain. According to the most recent estimate production of olives this year is 35,559,400 centals against 21,369,300 in 1936 and 28,782,900 on the average of the five years ending 1935; percentages 166,4 and 123,5.

Portugal: The prospects of good crops in the most important olive areas and of normal crops in other parts were confirmed at the end of October.

Palestine: The olive crop is well up to expectations and yields are greatly in excess of last year and, in some sections, the best gathered for some years.

Algeria: The weather conditions of November were generally favourable for the ripening of olives, except in Constantine, where drought was an adverse factor and where part of the fruit withered and fell before picking; *Dacus* was also reported to be present in some areas of this *département*.

Oil production is expected to amount to 351,000 centals (4,685,000 American gallons) against 143,000 centals (1,912,000 American gallons) in 1936-37 and an average of 338,000 centals (4,508,000 American gallons) in the years 1931-32/1935-36; percentages, 245.1 and 103.9.

The linseed statistical situation

World production.

With the first estimates of linseed production in 1937-38 issued by the Argentine Government on 15 December, the information now available covers more than 90 per cent. of the world production of 1937 (U. S. S. R. excluded), making it possible to assess this volume with sufficient accuracy. The conclusions suggested by a general examination of the results of the present flaxseed year are that unfavourable weather conditions were experienced at the different stages of growth and reduced unit yields in several producing countries in varying proportions.

World production of linseed.

(1,000 centals).

CONTINENTS	1937-38	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30	Average 1924-25/1928-29
North and Central America	4,334	4,001	9,127	3,748	4,277	8,069	8,025	14,815	10,102	16,513
South America	36,950	45,446	35,010	46,584	36,685	35,583	52,625	46,738	29,829	41,643
Argentina	(34,943)	(42,673)	(33,290)	(44,644)	(35,054)	(34,723)	(49,878)	(43,872)	(28,003)	(40,548)
Asia 1)	9,590	8,973	9,634	8,598	9,326	9,480	8,620	6,464	7,441	9,043
Europe 1)	5,379	5,401	4,784	3,527	2,778	2,315	3,285	4,431	5,467	4,257
U. R. S. S.	...	16,535	16,314	15,130	16,411	17,582	18,600	15,873	15,715	2)12,412
Africa	265	309	205	260	128	267	589	298	282	335
Oceania	22	20	15	22	18	4	15	108	110	44
GENERAL TOTALS:										
EXCLUDING U. S. S. R.	**56,540**	**64,155**	**58,775**	**62,739**	**53,212**	**55,718**	**73,159**	**72,854**	**53,231**	**71,835**
INCLUDING U. S. S. R.	...	**80,689**	**75,089**	**77,869**	**69,623**	**73,300**	**91,759**	**88,727**	**68,946**	**84,247**

1) Excluding U. S. S. R. — 2) Average of four years.

In Argentina the season was very uneven. The drought which prevailed during the greater part of the winter not only retarded sowings and the growth of the crop but caused appreciable contraction in the area sown, mainly in the provinces of Córdoba and Santa Fé. This abnormal situation lasted until mid-September. Subsequently, fairly general rains fell bringing favourable results and making it possible, though with some delay, to proceed with sowings and to re-sow the fields which had suffered considerable damage. There was an increase of about 740,000 acres between the first and the third estimate of the area sown to flax this year, the last referring to end of November. In spite of this increase, which brought the area sown this year up to 7,023,000 acres, there is a decrease of 5.6 per cent. from 1936-37, and one of 6.5 per cent from the average of the previous five years.

In the Crop Report for October it was forecast, on the assumption that the season would be normal and that the difference between the first estimate and the area sown and the second would not be considerable, that Argentina flaxseed production would fall very much below the levels of 1936-37 and the average, estimated respectively at 42,670,000 centals (76,200,000 bushels) and 39,463,000 centals (70,470,000 bushels) and would possibly vary around 33,070,000 centals (59,053,000 bushels). The first estimate which has just been issued by the Argentine Government on the basis of an area exceeding the provisional estimate by about 740,000 acres places production at 34,943,000 centals (62,399,000 bushels) that is, 18.1 per cent. below last year's level and 11.6 per cent. below the average of 1931-32 to 1935-36. The mediocre results of this year are to be attributed partly to the effects of the drought which reduced yields in the pro-

Area, production and yield of linseed in Argentina.

YEARS	AREA			PRODUCTION			
	sown	harvested	% of sown area harvested	total		per acre harvested	
	1,000 acres	1,000 acres	%	1,000 centals	1,000 bush.	centals	bushels
1927	7,290	7,127	97.8	45,239	80,784	6.3	11.3
1928	7,055	6,892	97.7	46,297	82,674	6.7	12.0
1929	6,944	6,568	94.6	43,892	78,379	6.7	11.9
1930	7,092	5,231	73.8	28,003	50,006	5.4	9.6
1931	7,512	6,749	89.8	43,872	78,343	6.5	11.6
Average 1927/31 . . .	*7,179*	*6,513*	*90.7*	*41,461*	*74,037*	*6.4*	*11.4*
1932	8,641	8,263	95.6	49,878	89,067	6.0	10.8
1933	7,401	6,395	86.4	34,723	62,005	5.4	9.7
1934	6,855	4,878	71.2	35,054	62,596	7.2	12.8
1935	8,103	7,104	87.7	44,644	79,721	6.3	11.2
1936	6,573	5,088	77.4	33,290	59,446	6.5	11.7
Average 1932/36 . . .	*7,515*	*6,346*	*84.4*	*39,518*	*70,567*	*6.2*	*11.1*
1937	7,438	6.623	89.0	42,673	76,202	6.4	11.5
1938	7,023	...	...	34,943	62,399	...	...

vinces of Córdoba and Santa Fé, and still more to the heavy damage caused by repeated frosts at the end of October and the first three weeks of November, particularly in the province of Buenos Aires. No estimates of the harvested area are yet available but there is reason to believe that the difference between it and the sown area will be appreciably greater than that of last year and also greater than the normal difference, which is about 10 per cent.

No estimate of the area and production in 1937-38 in Uruguay is yet available. Private information indicates that the extent of the crop in 1937-38 and the outturn will not reach the figures of last year though they will be larger than the average of 1931-32 and 1935-36.

North American production of flaxseed has been decreasing considerably for some years, as a result of the contraction in the cultivated area and the unfavourable seasons, which on some occasions had disastrous effects. This year the reduction in the flax area compared with 1936 was considerable in Canada (about 50 per cent) but in the United States it was 17.9 per cent. Compared with the average, the decrease was greater in the United States (48 per cent) than in Canada (36 per cent.). Crop results were distinctly poor in Canada where damage caused by the summer drought eliminated a considerable part of the crop, which is now estimated to be 61.7 per cent below that of 1936 and about 60 per cent below the average.

In the United States, on the other hand, the production this year, according to the December estimates, indicates an increase of 32.3 per cent. on that of 1936, but here also the production is among the poorest obtained for a number of years Total production of the two countries amounts to 4,290,000 centals (7,661,000 bushels) against 3,957,000 centals (7,067,000) in 1936 and an average of 6,579,000 centals (11,748,000)

In Europe the total production of the continent, though high, is of the same volume as that last year despite the general appreciable increase in the area cultivated as compared with 1936. The crop was plentiful and even larger than the good outturn of 1936 in Germany, which now takes second place among linseed producers of the Continent, in the Baltic countries, except Estonia, and in Italy and Yougoslavia Results are not expected to be as good as last year in Poland, France and Belgium.

On the whole, the European crop, though it failed to reach the volume expected after the increase in area, may be described as large for it definitely surpasses the production secured over a long series of years with the exception of that of 1929, to which, however it approximates.

For the U. S S. R., the only figure available is that of the total area to be devoted to flax, including that for fibre, according to the plan, which provided for an area equal to that of 1936, or a decrease of 13.5 per cent from the 1931-1935 average. The information of the Soviet Government indicates that the linseed crop in 1937 was plentiful and would exceed that of last year which was estimated, according to the plan, at 16,535,000 centals (29,526,000 bushels). From the point of view of international trade, the Russian production, despite its considerable volume, is almost negligible, internal requirements absorbing nearly all the outturn.

Area and production of flax.

Countries	† Area					† Production							
	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/37 = 100	% 1937 — 1937/38: Average = 100	1937 — 1937/1938	1936 — 1936/1937	Aver. 1931 to 1935 — 1931/32 to 1935/36	1937 — 1937/38	1936 — 1936/37	Aver. 1931 to 1935 — 1931/32 to 1935/36	% 1937 — 1937/38: 1936 — 1936/1937 = 100	% 1937 — 1937/38: Aver. = 100
	1,000 acres					1,000 centals			1,000 pounds				
						Fibre.							
Germany 1)	141	109	23	129.1	604.1	748	657	2) 163	74,838	65,679	2) 16,346	113.9	457.8
Austria	7	6	5	123.0	135.6	18	16	14	1,797	1,564	1,432	114.9	125.5
*Belgium	70	72	33	96.9	211.3	...	480	230	...	48,029	22,977	...	...
Bulgaria	11	7	2	155.6	429.3	14	3	4	1,408	315	445	447.4	316.3
Estonia	77	70	50	110.1	155.8	249	192	143	24,860	19,211	14,313	129.4	173.7
*Irish Free State	...	5	2	...	...	...	21	8	...	2,121	831	...	...
*Finland 3)	9	11	11	87.4	87.0	...	...	36	...	...	3,571	...	...
France	69	97	45	70.5	152.5	420	536	253	41,957	53,643	25,278	78.2	166.0
Hungary	10	9	4) 7	112.5	136.2	38	39	4) 24	3,808	3,868	4) 2,395	98.4	159.0
Italy	15	15	9	102.1	166.3	66	71	44	6,579	7,094	4,361	92.7	150.8
Latvia	171	166	113	103.0	150.8	566	409	334	56,571	40,874	33,431	138.4	169.2
Lithuania 3)	218	208	145	105.0	150.7	679	635	472	67,865	63,482	47,233	106.9	143.7
Netherlands	43	33	14	130.6	298.4	302	271	105	30,192	27,137	10,473	111.3	288.3
*Poland	360	330	257	109.1	139.9	...	821	693	...	82,109	69,297	...	...
*Romania	...	71	62	...	...	...	261	159	...	26,090	15,930	...	...
Un. Kingd:													
* North. Ir.	19	25	13	75.2	143.0	...	113	68	...	11,274	6,839	...	...
Czechoslovakia	48	40	23	118.1	209.8	227	210	100	22,687	21,026	9,962	107.9	227.7
*Yugoslavia	34	34	29	100.0	116.1	...	264	225	...	26,352	22,481	...	...
Total Europe	*810*	*760*	*436*	*106.9*	*184.2*	*3,327*	*3,039*	*1,656*	*332,562*	*303,893*	*165,669*	*109.5*	*200.5*
*U. S. S. R. 5)	6) 4,709	5,310	5,689	88.7	82.8	...	11,685	11,832	...	1,168,454	1,183,168	...	...
Egypt	7	6	4	109.1	176.5	44	41	23	4,418	4,128	2,287	107.0	193.1
TOTALS	**817**	**766**	**440**	**107.2**	**184.8**	**3,374**	**3,080**	**1,679**	**336,980**	**308,021**	**167,956**	**109.5**	**200.5**
						Linseed.							
									1,000 bushels of 56 pounds				
Germany	141	109	23	129.1	604.1	911	715	2) 192	1,626	1,276	2) 343	127.4	474.3
Austria	4	3	3	108.2	112.3	12	13	12	22	24	22	92.2	100.0
*Belgium	70	72	33	96.9	211.3	...	433	175	...	772	313	...	...
Bulgaria	11	7	2	155.6	429.3	37	38	10	67	68	19	97.6	359.4
Estonia	77	70	50	110.1	155.8	231	247	147	412	440	262	93.5	157.4
*France	...	97	45	...	...	...	...	188	...	...	335	...	...
Hungary	15	15	4) 27	103.4	55.5	95	95	4) 129	169	169	4) 230	100.0	73.3
Italy	19	16	12	121.1	159.6	112	84	63	200	150	113	133.8	177.5
Latvia	171	166	113	103.0	150.8	517	406	307	924	725	549	127.4	168.4
Lithuania 3)	218	208	145	105.0	150.7	847	809	555	1,512	1,444	991	104.7	152.7
*Netherlands	43	33	14	130.6	298.4	...	240	89	...	428	159	...	...
*Poland	360	330	257	109.1	139.9	...	1,579	1,157	...	2,820	2,066	...	...
*Romania	...	71	62	...	...	...	299	239	...	534	426	...	...
Czechoslovakia	48	40	23	118.1	209.8	187	161	78	335	288	139	116.4	241.5
*Yugoslavia	34	34	29	100.0	116.1	...	34	19	...	60	34	...	...
Total Europe	*704*	*634*	*398*	*111.0*	*175.8*	*2,949*	*2,568*	*1,493*	*5,267*	*4,584*	*2,668*	*115.0*	*197.5*
*U. S. S. R.	7) 5,855	7) 5,798	6,766	101.0	86.5	...	...	16,808	...	...	30,014	...	...
Canada	241	468	377	51.5	63.9	385	1,005	940	687	1,795	1,679	38.3	40.9
United States	924	1,126	1,770	82.1	52.2	3,905	2,953	5,639	6,974	5,273	10,070	132.3	69.3
India	3,594	3,457	3,230	104.0	111.3	9,363	8,691	8,893	16,720	15,520	15,880	107.7	105.3
Egypt	7	6	4	109.1	176.5	46	42	28	82	75	50	109.0	162.2
*Eritrea	...	11	4	...	...	...	46	21	...	82	37	...	...
*Fr. Morocco	...	43	49	...	...	146	212	223	260	378	399	68.7	65.1
Tunis	1	1	3	170.0	32.7	3	2	13	5	4	24	120.0	20.0
Argentina	8) 7,023	8) 7,438	8) 7,514	94.4	93.5	34,943	42,673	39,518	62,399	76,202	70,568	81.9	88.4
*Uruguay	...	469	350	...	...	...	2,745	1,749	...	4,901	3,124	...	...
TOTALS	**12,494**	**13,130**	**13,296**	**95.2**	**93.9**	**51,594**	**57,934**	**56,524**	**92,134**	**103,453**	**100,939**	**89.1**	**91.3**

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†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) The corresponding figures in dry stalks (flax in raw «Rohstengel») are as follows: 1937-374,192,000 lb.; 1936-328,400,000 lb; average 81,700,000 lb. — 2) Average 1933 to 1935. — 3) Flax and hemp. — 4) Average 1934 and 1935. — 5) "Dolgunetz" variety. — 6) Area harvested on 25 August representing 93 % of the area fixed by the Plan (5,108,700 acres). — 7) Total area according to the plan. — 8) Area sown.

The production of linseed in 1937 is India is the largest of the last 10 years with the exception of that of 1935 which exceeds it only slightly. The exceptional size of the crop this year is due to the increase in the cultivated area (4 and 11 per cent. on that of last year and the average respectively) and to the generally favourable course of the season. The crop in French Morocco, the most important producing country in Africa, shows a decrease of ⅓ from last year and from the average.

To sum up, world production of linseed this year (excluding the U. S. S. R.), according to official estimates now available and to information on the probable results in the countries which have not yet issued preliminary estimates, may be estimated at 56,540,000 centals (100,964,000 bushels) against 64,155,000 centals (114,562,000 bushels) 1936-37 and an average of 60,848,000 centals (108,657,000 bushels) in the preceding five years. Production this year ranks much below the average of the years 1924-25 to 1928-29 which was 71,835,000 centals (128,341,000 bushels). As regards the value of this preliminary estimation of the world linseed crop in 1937-38, it is to be noted that the changes it may undergo depend almost entirely on the possible modifications to be made in the first estimate of the Argentine crop.

The world linseed trade.

Principal exporting countries. — For 10 years, that is to say, since the disappearance of Canada from the list of linseed exporting countries, exports have been made up almost entirely by the contributions of three countries namely. Argentina, India and Uruguay. Argentina is by far the most important of these, her normal exports amounting to about 90 per cent. of her annual production, and the remaining 10 per cent. being absorbed by domestic requirements.

World exports of linseed.

YEARS	Argentina		India		Uruguay		Other countries		Total	
	1,000 centals	%	1,000 centals	%	1,000 centals	%	1,000 centals	%	1,000 centals	%
1924-1928	34,527	76.1	5,602	12.3	1,045	2.3	4,209	9.3	45,383	100
1929	35,660	79.2	5,602	12.4	1,219	2.7	2,562	5.7	45,043	100
1930	25,788	72.3	5,855	16.4	1,744	4.9	2,295	6.4	35,682	100
1931	41,454	84.7	2,520	5.1	2,930	6.0	2,037	4.2	48,941	100
1932	44,701	90.3	1,728	3.5	1,726	3.5	1,343	2.7	49,498	100
1933	30.695	74.7	7,782	18.9	1,334	3.2	1,292	3.2	41,103	100
1934	30,303	77.1	6,175	15.7	1,563	4.0	1,276	3.2	39.317	100
1935	39,187	86.7	2,897	6.4	1,556	3.4	1,547	3.5	45,177	100
1936	32,792	75.3	6,912	15.9	1,647	3.8	2,191	5.0	43,542	100

Argentina's contribution to the total exports reached a record of 90.3 per cent. with 44,701,000 centals (79,824,000 bushels) in 1932 and a minimum of

72.3 per cent. in 1930 with 25,788,000 centals (46,049,000 bushels), compared with 75.3 per cent. in 1936 and an averate of 76.1 per cent. in the years 1924-28.

The situation in Argentina is thus a dominating influence in the world linseed trade and the wide variations noticeable in the yearly exports are explained almost entirely by the variations in the Argentine crops and depend on the volume of supplies available in this market

Argentine exports of linseed in the first months of this year, following the greater rapidity with which the crops of this country have been marketed this year, have reached record figures The total exports of the quarter January-March of this year were 15,077,000 centals (26,924,000 bushels) and exceed, without exception, all corresponding figures of the past including those of years when production was much more plentiful. The previous highest figure was recorded in the first quarter of 1929 with 14,877,000 centals (26,566,000 bushels) whilst in 1932 with a record production of 49,876,000 centals (89,067,000 bushels) the corresponding exports were 13,466,000 centals (24,046,000 bushels).

Production and export of linseed in Argentina.

YEARS	PRODUCTION	EXPORT					
		first quarter	second quarter	third quarter	fourth quarter	Total	
						absolute	% of production
				(1 000 centals)			
1927	45,239	12,588	11,175	8 580	9,645	41 988	92 8
1928	46,297	14,008	9,209	10,351	9 299	42 867	92 6
1929	43,892	14,877	10,016	6,618	4 149	35 660	81 2
1930	28,003	10,520	4,661	4 400	6,204	25 785	92 1
1931	43 872	14,112	8,596	10,256	8,490	41,454	94 5
Average 1927/31	*41 461*	*13,221*	*8,731*	*8 041*	*7 557*	*37 550*	*90 6*
1932	49,878	13,466	9,019	11,636	10,580	44 701	89 6
1933	34 722	11,651	7 185	5,968	5,891	30 695	88 4
1934	35,054	12 194	5,027	6,118	6,962	30 301	86 5
1935	44,644	13,902	8,547	8 391	8,351	39,191	87 8
1936	33 290	10 020	5,210	8 095	9 467	32 792	98 5
Average 1932/36	*39,517*	*12,247*	*6 998*	*8,042*	*8 248*	*35 535*	*89 9*
1937	42,673	15 077	8 572	7 011			

During the second quarter, figures did not reach the levels of the preceding months but they were high and approached those of the average of 1927-31, and were more than 1,543,000 centals (2,756,000 bushels) above the corresponding average for the years 1932-1936 During the third quarter, the weakening in exports was accentuated and the total for the first nine months of 1937 at 30,660,000 centals (54,750,000 bushels) is 661,000 centals (1,181,000 bushels) and 3,375,000 centals (6,027,000 bushels) respectively above the averages of the periods 1927-1931 and 1932-36. An enquiry made by the Argentine Government, which increased the estimate of linseed production for last year to 42,673,000 centals (76,202,000 bushels), placed the exportable surplus on 23 October at 4,233,000 centals (7,559,000 bushels); this figure is below the normal figure for this period of the year. It may thus be foreseen that on 1 January 1938, that is, the date recently selected by the Government as the official opening of the commercial linseed year, there will be no stocks, or only negligible quantities. On the basis of the production estimate and the quantities which will be required for seed and or for the national linseed oil industry, estimated respectively at 3,748,000 centals (6,693,000 bushels) and 661,000 centals (1,181,000 bushels), the Argentine Government places the exportable surplus for 1938 at nearly 30,865,000 centals (55,116,000 bushels).

India follows Argentina at a great distance, and exported on the average more than 55 per cent. of its annual production during the period 1927-31. The highest proportional contribution of this country to world exports (18.9 per cent.) was recorded in 1933 with 7,782,000 centals (13,897,000 bushels) against an average of 12.3 per cent. for the period 1924-28 and 15.9 per cent. last year. The lowest figures were registered in the years 1931, 1932 and 1935 with 5.1, 3.5 and 6.4 per cent. respectively, and coincide with the highest Argentine proportions.

Area and production in and exports from India.

YEARS	AREA	PRODUCTION	EXPORTS					
			first quarter	second quarter	third quarter	fourth quarter	Total	
							absolute	% of production
	1,000 acres	(1,000 centals)						
1927	3,331	9,094	620	1,239	1,596	1,400	4,855	53.4
1928	3,311	7,796	747	1,204	1,078	798	3,827	49.1
1929	3,111	7,211	432	1,250	2,368	1,554	5,604	77.7
1930	2,802	8,512	388	3,029	1,898	538	5,853	68.8
1931	3,010	8,446	280	948	606	681	2,519	29.8
Average 1927-31	*3,113*	*8,212*	*493*	*1,534*	*1,509*	*994*	*4,530*	*55.2*
1932	3,062	9,317	459	423	390	456	1,728	18.6
1933	3,301	9,094	346	1,111	3,274	3,051	7,782	85.6
1934	3,262	8,422	1,052	2,019	1,757	1,347	6,175	73.3
1935	3,410	9,407	214	1,005	282	1,396	2,897	30.8
1936	3,457	8,691	988	2,183	2,006	1,733	6,910	79.5
Average 1932-36	*3,298*	*8,986*	*612*	*1,348*	*1,542*	*1,597*	*5,099*	*56.7*
1937	3,593	9,363	710	1,312	1,773	...	...	...

The contraction in Indian exports to a volume much below the normal is to be attributed mainly to the growers themselves, who, in view of the low prices on the world market, preferred to accumulate stocks. During the first quarter of this year, the export movement from India was much less pronounced than it was at the same time last year. The slackening was particularly noticeable in the second quarter of the year, with a decrease from the corresponding volume exported in 1936 reaching the figure of about 882,000 centals (1,575,000 bushels) compared with the average of 1927-31 the decrease was 220,000 centals (394,000 bushels).

The third quarter brought a recovery in exports which, though they did not reach the rather high level of last year, exceeded the corresponding average for the period 1927-31 by 265,000 centals (472,000 bushels). Total exports for the first nine months of this year amounted to 3,792,000 centals (6,771,000 bushels) or about 27 per cent, less than the corresponding exports in 1936 (5,176,000 centals 9,244,000 bushels) but they surpassed the average of the first three quarters of the year 1927-31 by 254,000 centals (453,000 bushels).

Uruguay has increased its flax crop appreciably for some years and exported for the period 1932-36 an average of more than 1,543,000 centals (2,756,000 bushels), the highest figure was recorded in 1931 with 2,930,000 centals (5,232,000 bushels) against an 1924-28 average of 1,045,000 centals (1,866,000 bushels).

Principal importing countries. — In recent year Europe has imported three-quarters of the net world imports of linseed. The first place among continental imports is occupied by the Netherlands, which imported a maximum of 9,837,000 centals (17,566,000 bushels) in 1932 and a minimum of 5,472,000 centals (9,771,000 bushels) in 1930, compared with an average of 7,229,000 centals (12,909,000 bushels) in the years 1924-1928 The second place is taken by France, which, during the years 1931-35, imported an average of about 5,512,000 centals (9,842,000 bushels) an increase of about 1,543,000 centals (2,756,000 bushels) on the 1924-28 average. In 1936 French imports reached the record figure of 6,177,000 centals (11,031,000 bushels) which was about 2,205,000 centals (3,937,000 bushels) above the 1924-28 average In the United Kingdom, however, imports after reaching a record of 8,247,000 centals (14,720,000 bushels) in 1924-28 have declined appreciably in recent years. The difference between the imports of the years 1935 and 1936 and this average amounted to about 2,205,000 centals (3,937,000 bushels).

Germany has also reduced its imports. From an average of 6,766,000 centals (12,082,000 bushels) in the years 1924-28, they fell to 4,824,000 centals (8,614,000 bushels) in 1936, the lowest figure recorded for many years, the highest figure was registered in 1932 (9,822,000 centals or 17,539,000 bushels). The decrease in German imports of linseed in recent years is largely due to the increase in domestic production following the extension of the crop. The net imports of the Belgo-Luxemburg Union in 1936 also show a decrease from former years except 1930 and 1934. Imports into Italy, if the low figures of 1936 are excepted, have shown a slight tendency to increase for some years, with a maximum of 1,653,000 centals (2,953,000 bushels) in 1932 and a minimum of 1,171,000 centals (2,090,000 bushels) in 1930.

The net imports of the minor European countries, in particular, Sweden, Norway, Denmark, Spain and Czechoslovakia, despite the variation between one year and another, show on the whole a steady growth from the average of the years 1924-28.

Among the non-European importing countries, the United States occupied the first place. The net imports of this country show considerable variations

Net imports of linseed of the principal European and extra-European countries.

(1,000 centals)

COUNTRIES	1937 1)	1936	1935	1934	1933	1932	1931	1930	1929	Average 1924/1928
					I. — European countries.					
Germany	3,457	4,824	5,452	6,984	7,871	9,822	7,494	5,168	6,883	6,766
Belgo-Lux Un	1,887	2,295	2,612	1,728	2,683	3,532	3,497	1,607	2,306	2,017
Denmark	428	450	562	359	425	534	417	359	322	421
Spain	2)	2)	558	366	359	516	465	419	419	355
France	5,448	6,177	5,692	5,210	5,820	5,194	5,796	4,184	4,707	3,898
Italy	1,431	1,195	1,590	1,422	1,653	1,512	1,351	1 171	1,301	1,327
Norway	459	474	536	337	412	403	289	357	324	340
Netherlands	5,701	7,185	8,794	7,031	6,468	9,837	9,204	5,472	7,807	7,229
Poland	—	—	—	170	284	269	267	119	137	82
United Kingdom	5,419	6,087	5,955	4,107	5,505	8,111	7,568	4 991	6,360	8,243
Sweden	1,005	807	917	849	774	957	1,054	798	778	807
Czechoslovakia	540	536	593	553	421	796	575	428	613	461
Total of 1st group	*25,775*	*30,030*	*33,261*	*29,116*	*32,675*	*41,483*	*37,977*	*25,073*	*31,957*	*31,946*
					II. — Extra-European countries.					
United States	13 768	8,605	9,844	7,934	7,743	4,434	8,109	7,090	13 576	10,646
Australia	754	516	875	558	487	474	311	340	838	448
Japan	441	284	476	432	472	148	185	126	351	234
Total of 2nd group	*14,963*	*9,405*	*11,195*	*8,924*	*8,702*	*5,056*	*8,605*	*7 556*	*14,765*	*11,328*
GENERAL TOTAL	**40,738**	**39,435**	**44,456**	**38,040**	**41,377**	**46,539**	**46,582**	**32,629**	**46,722**	**43,274**

1) Up to the end of October - 2) Data not available

from year to year owing to variations in the size of the domestic linseed crop. Thus, the difference between the record figure in 1929 (13,576,000 centals) (24,243,000 bushels) and the minimum of 1932 is more than 9,039,000 centals (16,141,000 bushels). The imports of other countries, Australia and Japan in particular, show an increase in general on the average of 1924-28. Canada, which before the War exported an average of 3,968,000 centals (7,086,000 bushels) has gradually reduced its flaxseed crop and at present it appears among the importing countries, having imported an average of more than 441,000 centals (787,000 bushels) in the period 1934-36.

As regards the import movement in European countries during the first 10 months of this year, with the exception of Germany, which decreased its imports by about 661,000 centals (1,181,000 bushels) from the corresponding figure for last year, all countries considered in the table show slight increases. France almost maintained its imports at the high level of last year while Italy increased them by about 50 per cent.

But the outstanding fact of the import trade during 1937 is the unprecedented increase in the imports of the non-European countries as a result of the very poor crops which were obtained principally in North America. Up to the end of October the United States had imported 13,768,000 centals (24,586,000 bushels against 6,255,000 centals (11,169,000 bushels) for the same period last year. This figure is a record, exceeding that for the whole of the year 1929 by about 220,000 centals (394,000 bushels). Canada up to the end of October had imported 624,000 centals (1,114,000 bushels) which is also a record figure, while Australia increased its imports by 50 per cent. compared with the first ten months of 1936.

World linseed oil trade.

Linseed is mainly used for the extraction of oil, which on account of its drying qualities may be utilised industrially in many ways. The linseed oil trade is supplied almost entirely by Europe which generally contributes 97 to 98 per cent. of the world total

World exports of linseed oil

YEARS	Netherland		France		Belgium		Other countries		World Export	
	1,000 lb	%	1,000 lb	%	1,000 lb	%	1,000 lb	%	1,000 lb	%
Average 1924 28	*152 119*	*61 7*	*4,630*	*1 9*	*21 605*	*8 8*	*68 123*	*27 6*	*246 477*	*100*
1929	172,623	61 8	5 732	2 1	29,763	10 7	70,989	25 4	279,107	100
1930	171,961	63 8	12,346	4 6	29,322	10 9	55,777	20 7	269 406	100
1931	161,379	64 3	10,362	4 1	22,708	9 0	56,659	22 6	251 108	100
1932	126,105	58 6	10,362	4 8	34,833	16 2	43 872	20 4	215 172	100
1933	105,161	61 6	9,480	5 5	20,724	12 1	35,495	20 8	170,860	100
1934	171 300	73 6	13,228	5 7	8 378	3 6	39 683	17 1	232,589	100
1935	190,921	70 0	27,117	9 9	12,566	4 6	42,108	15 5	272,712	100
1936	159 174	66 2	26,896	11 2	10,362	4 3	43 872	18 3	240,304	100

The Netherlands take first place, supplying on the average two-thirds of the world exports. Its exports in 1936 were 159,174,000 pounds compared with the record of 190,921,000 pounds in 1935 and an average of 152,119,000 pounds in the years 1924-28.

Belgium occupied the second place up to 1933 with a contribution varying between a minimum of 8 8 per cent in 1924-28 and a maximum of 16 2 per cent. in 1932 after which its place was taken by France which exported 26,826,000 pounds of oil in 1936, a quantity almost equal to that of 1935. The proportion its contribution bore to the total world exports in 1936 was 11.2 per cent. against 9.9 per cent in the previous year The main European importing countries of linseed oil in the present order of importance are the United Kingdom, Germany, Switzerland, Austria and Finland which together take nearly 80 per cent of the world imports The remaining 20 per cent goes almost entirely to the non European countries, in particular to the Union of South Africa, New Zealand and the Netherlands Indies

Linseed prices.

"La Plata" linseed prices at London for delivery at Hull during the first ten months of this year showed a very appreciable and steady improvement compared with the average of 1936 which itself showed a recovery from the average of the preceding four years. The highest monthly price for this variety was reached in October with 20.35 gold francs per quintal which was the average level of 1931 and which exceeds the average prices of the years 1932 to 1935 by about one-quarter.

Prices of « La Plata » and « Bold Bombay » linseed in London

(Gold francs per quintal)

	"La Plata" (Delivery Hull)	"Bold Bombay" (Delivery London)
Annual average.		
1928	39.02	45.69
1929	45.29	51.47
1930	37.27	43.97
1931	20.18	26.35
1932	15.02	20.56
1933	15.59	19.00
1934	15.36	18.15
1935	14.35	18.24
1936	16.97	20.40
Monthly average 1937		
January	17.65	21.71
February	17.23	20.82
March	18.34	22.19
April	19.40	23.08
May	19.68	23.43
June	19.30	22.77
July	19.67	23.20
August	19.80	23.43
September	19.82	23.41
October	20.35	23.63
November	19.06	22.67

"Bold Bombay" prices at London for delivery at London were also characterized in 1937 by a considerable increase on the 1936 prices. For this variety also the average October price was the highest of the year and though it did not reach the level of 1931, it exceeds the average prices of the previous 5 years by an appreciable margin. In November the price for both varieties weakened slightly and this tendency continued up to the middle of December.

A. DI FULVIO.

Current information on cotton.

Greece: According to the latest report of the Cotton Institute, cotton production which was previously forecast as very large is now reported as much smaller and may even be less than last year. This is due mainly to various diseases, which attacked plants after the heavy rains of October and November.

United States: During the week ended 17 November, rainfall in the cotton belt was rather heavy in nearly all sections, and interfered more or less with picking where the harvest was not completed Additional damage was done to cotton remaining in the fields in the Mississippi Valley sections. Picking in the western belt was nearing completion During the following week, the picking of the remnants of the cotton crop made rather good progress in the north-eastern portion of the belt, but elsewhere, owing to unfavourable weather, little farm work was accomplished, and some further damage was reported to cotton remaining in the fields in the Mississippi Valley area Little of the crop remained ungathered in Texas and Oklahoma During the week ended 1 December the progress of the picking of the cotton crop was slow in the north central and north-east portions of the belt as a result of rain and cold during part of the week Much cotton remained in the fields in some of the central northern districts, especially in the lowlands of Arkansas Little cotton remained unpicked in the western part of the belt

Area and production of cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1937/38	1936/37	Average 1931/32 to 1935/36	% 1937/38: 1936/37 = 100	% 1937/38: Average = 100	1937/1938	1936/1937	Average 1931/32 to 1935/36	1937/1938	1936/1937	Average 1931/32 to 1935/36	% 1937/38: 1936/1937 = 100	% 1937/38: Average = 100
	1,000 acres					1,000 centals			1,000 bales of 478 lb				
Bulgaria	113	78	44	145 2	254 6	197	140	74	41	29	16	140 3	264 4
Greece	1) 181	1) 154	1) 74	117 5	245 4	364	279	146	76	58	31	130 6	249 4
Italy	54	26	6	204 4	968 5	93	47	11	20	10	2	198 0	826 9
Yugoslavia	1) 8	1) 5	1) 3	168 6	273 2	.	10	3		2	1		
U S S R	2) 5,163	5,024	5,068	—	—	2) 16,645	16,976	9,309	2) 3,482	3,551	1,947	—	—
Argentina	1) 1 195	1) 1,030	1) 555	116 0	215 2		689	1 136		144	238		
Brazil North			1,929	.		4 149	3,059	2 624	868	640	549	135 6	158 1
Brazil South		.	1,232				5 741	2,295		1 201	480		.
United States 3)	33 930	30,028	31,697	113 0	107 0	89 606	59,267	60,629	18 746	12,399	12,684	151 2	147 8
Mexico	856	844	390	101 5	219.3	1,558	1,717	1,000	326	359	209	90.8	155.9
Montserrat 4)	5	5	3	109 9	170 6	5	5	6	1	1	1	109 4	84 4
St Vincent 4)	5	5	2	85 0	259 0		3	2		1	*)		
Burma	1) 544	1) 519	1) 453	104 9	120 1	—	—	—	—	—	—	—	—
China	11 243	8,534	5,745	131 7	195.7	15 416	18,708	11 633	3,225	3,914	2,434	82 4	132 5
India 5) 6)	24,276	7) 23 420	22,195	103 7	109 4	21,736	7) 21 496	18 012	4 547	7) 4 497	3 768	101 1	120 7
Egypt	2,053	1,781	1,657	115.3	123.9	8) 10,907	9,021	7,127	8) 2,282	1,887	1,491	120 9	153 0
Kenya	—	—	—	—	—	80	88	30	17	18	6	90 9	265.3
Nyasaland		.	44			40	48	35	8	10	7	82.5	115 3
Uganda	1 737	1 487	1 116	116 8	155 7	.	9) 1,331	9) 1 090		9) 278	9) 228	. .	..

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*) Less than 500 bales

1) Area sown - 2) According to the Plan - 3) See *Summary of Government Cotton Reports* — 4) *Sea Island* cotton - 5) Not including Burma — 6) Third report - 7) Revised estimate — 8) Second estimate — 9) Exports

According to the Cotton Report based upon conditions as of 1 December, and issued on 8 December, a crop of 18,746,000 bales of 478 lb. net weight is now estimated by the Department of Agriculture. This is 503,000 bales, or 2 8 per cent. larger than the November forecast, and would be by far the largest crop on record for the United States. Harvested acreage is now estimated at 33,930,000 acres, an increase of about 13 0 per cent on that of 1936 Allowing for estimated abandonment of 1 3 per cent the cotton acreage in cultivation of 1 July is indicated to have been 34,383,000 acres The estimated production on 1 December was increased over that indicated a month ago in all major States with the exception of Louisiana, Oklahoma and Arkansas

During the week ending 8 December, there has been little field activity in the cotton belt, owing to low temperatures A considerable amount of cotton remained unpicked in the fields of some of the Mississippi Valley sections

Summary of Government cotton reports by cotton season

	Provisional estimates for dates indicated 1937/38	Final estimates		Percent 1937/38	
		1936/37	Average 1931/32 to 1935/36	1936/37 = 100	Aver. = 100
Report referred to 1 July					
Area in cultivation (acres)	34 192 000	30 960 000	34 382 000	110 4	99 4
Report referred to 1 August					
Area left for harvest (acres)	1) 33 423 000	2) 30 028 000	2) 31 697 000	111 3	105 5
Crop condition (per cent of normal)	81	72	3) 69	—	—
Production 4)	15 593 000	12 399 000	12 684 000	125 8	122 9
Yield of lint per acre in lb	223 3	197 6	3) 179 3	113 0	124 5
Cotton ginned to 1 August 5)	142 983	41 130	88 771	347 7	161 1
Cotton ginned to 16 August 5)	514 675	208 509	294 690	246 8	174 6
Report referred to 1 September					
Area left for harvest (acres)	1) 33 736 000	2) 30 028,000	2) 31,697,000	112 3	106 4
Crop condition (per cent of normal)	75	59	3) 60	—	—
Production 4)	16 098,000	12 399 000	12,684 000	129 8	126 9
Yield of lint per acre in lb	228 5	197 6	3) 179 3	115 6	127 4
Cotton ginned to 1 September 5)	1 874 674	1 374 247	1,072 395	136 4	174 7
Cotton ginned to 16 September 5)	4,[illegible]	3,709 [illegible]5	2 657 216	115 0	160 6
Report referred to 1 October					
Crop condition (per cent of normal)	79	62	3) 5[illegible]	—	—
Production 4)	17 573 000	12,399 000	12,684 000	141 7	138 5
Yield of lint per acre in lb	249 3	197 6	3) 179 3	126 2	139 0
Cotton ginned to 1 October 5)	8,260 201	6 031 950	5 069,634	136 9	162 9
Cotton ginned to 18 October 5)	11 068 285	8 569,476	7 749 611	129 2	142 8
Report referred to 1 November					
Production 4)	18 243 000	12,399 000	12 684 000	147 1	143 8
Yield of lint per acre in lb	258 8	197 6	3) 179 3	131 0	144 3
Cotton ginned to 1 November 5)	13 16[illegible] [illegible]31	9 882,530	9 477 511	133 2	138 8
Cotton ginned to 14 November 5)	14 850,335	10 727,140	10 607,133	138 5	140 0
Report referred to 1 December					
Area in cultivation on 1 July (acres)	34 383,000	30 960 000	34 382,000	111 1	100 0
Area left for harvest (acres)	7) 33,930,000	2) 30 028 000	2) 31,697 000	113 0	107 0
Production 4)	18,746 000	12 399 000	12 684,000	151	147 8
Yield of lint per acre in lb	264 6	197 0	3) 179 3	133 9	147 6
Average gross weight of running bales in lb 8)	518 1	510 6	512 0	101 5	101 2
Cotton ginned to 1 December 5)	16,178,04[illegible]	11,4[illegible]3,110	11 427,325	140 5	141 6
Cotton ginned to 13 December 5)	16 812 000	11,699,116	11 743,353	143 7	143 2

1) Area in cultivation on 1 July less the ten year (1927 36) average abandonment 2 3 per cent — 2) Area actually harvested — 3) Ten year (1926 35) average — 4) In bales of 478 lb net weight and exclusive of linters — 5) In running bales counting round bales as half bales and exclusive of linters — 6) Area in cultivation on 1 July less 1 3 per cent of abandonment — 7) Abandonment 1 3 per cent — 8) Counting round bales as half bales and exclusive of linters

India (Telegram of 21 December) The first estimate of cotton production in the Punjab this season is 5,244,000 centals (1,097,000 bales) against a corresponding estimate of 5,532,000 (1,157,000) in 1936-37 and an average of 3 181,000 (665,000) for

1931-32 to 1935-36 The third estimate of acreage is 3,961,000 acres against a corresponding estimate of 3,686,000 in 1936-37 and a five season average of 2,808,000·

The first estimate of production in Madras is 1,759,000 centals (368,000 bales) against a first estimate in 1936-37 of 1,648,000 (345,000) and an average of 1,540,000 (322,000) The third estimate of acreage is 2,119,000 against a corresponding estimate of 1,982,000 in 1936-37 and a five season average of 1,851,000

Algeria · The damage caused by *Earias* is considerable A crop of 10,600 centals of unginned cotton is expected as compared with 4,470 centals last years, or an increase of 135 per cent The area was increased by 140 per cent. (1 200 acres against 510 acres in 1936-37) Production of lint is about 3,640 centals (760 bales) against 1,540 centals (320 bales) in 1936-37 and a 1931-32/1935-36 average of 1 480 centals (310 bales), percentages, 235 7 and 246 3 The average, however, includes four years with little or no production In the period 1926-27/1930-31 Algeria produced an average of 29,000 centals (6,000 bales), or that is, eight times as much as this year.

Egypt Cotton ginned up to the end of November, in bales of 478 lb net weight, was as follows

Varieties	1937	1936	1935	1934	1933	1932	1931
Sakellaridis	50 695	63,652	93 544	83 514	66 175	103 387	121 535
Other varieties above							
1 $^3/_8$″	315,331	265,841	204,570	117 885	38,013	57,371	501 885
1 $^1/_4$″	18 430	16 234	41 347	23 580	30,470	41 327	
1 $^1/_8$″	711 501	768,880	741,328	630,702	630 678	322 563	
Total . . .	1 095 957	1 114 607	1 084 391	855,717	765,336	524,648	623 420
Scarto . . .	18 121	22,198	21 574	16 855	10 370	11 717	17 077
Total production (including *Scarto*)	*) 2,281,900	1,887,200	1,768 600	1,565,600	1,776,000	1,027,000	1,317 370

*) Second estimate

Classification of the Egyptian cotton crop by staple length, in bales of 478 lb. net weight

(000 s omitted)

Varieties	1937		1936		1935		1934		1933		1932	
	Acres	Bales *)	Acres	Bales	Acres	Bales	Acres	Bales	Acres	Bales	Acres	Bales
1) Long staple. above 1 $^3/_8$″ (including *Sakellaridis*)	836 (167)	738 (107)	709 (168)	592 (108)	705 (309)	551 (187)	804 (436)	460 (208)	700 (406)	442 (239)	512 (383)	361 (252)
2(Long medium staple above 1 $^1/_4$″	31	32	36	30	54	43	68	44	118	76	97	76
3) Medium staple above 1 $^1/_8$″	1 186	1,467	1 036	1,223	974	1,135	926	1,028	1,055	1 225	526	567
Scarto	—	45	—	42	—	40	—	34	—	34	—	23
Total	*2,053*	*2,282*	*1 781*	*1,887*	*1,733*	*1,769*	*1,798*	*1,566*	*1,873*	*1,777*	*1,135*	*1,027*

*) Second estimate — 1) Maarad, Sakha 4, Sikellaridis, Giza 26, Giza 7, etc -- 2) Giza 12, Fuadi, Giza 3, etc -- 3) Ashmûni and Zagôra

Nigeria In October, prospects for the cotton crop appeared favourable and it was expected that, provided weather conditions remained satisfactory, the yield per acre would be up to the average

Nyasaland: It was reported in October that the cotton crop in the lower river areas had suffered severe damage from bollworm.

Uganda: By the end of October the condition of the cotton crop was up to the average but it was stated that it would deteriorate if a period of dry weather did not occur.

Current information on hemp.

Greece: In view of the success of the attempt to extend the cultivation of hemp in Greece, the Government recently ratified by law a decision of the Council of Ministers to increase hemp growing in Greece. Under this law hemp will be grown in 1938 over an area of 1,500 acres, mainly in the basin of the Ludias, against 200 acres this year. Under the same law, leases will be granted without auctioning on the proposal of a special Commission; the period will be two years renewable for three years. Growers will instal at their own expense all the equipment necessary for hemp growing

Area and production of hemp.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100				1936 = 100	Average = 100
	1,000 acres					1,000 pounds				
				Fibre						
Germany 1)	19	14	2	133 2	775 6	14 872	9,929	2) 8,238	149 8	180 5
Austria	3)	1	1	81.3	59 2	176	184	286	95 7	61 6
Bulgaria .	21	16	13	132 0	162 1	8,448	7,288	5,012	115 9	168 5
France . .	9	9	7	95 7	126 7	9,192	9,466	6,995	97 1	131 4
Italy . .	214	185	147	115 7	145 9	237,741	192,372	129,883	123 6	183 0
Poland	85	83	80	101 4	106 0	..	26,875	25,331	...	..
Romania		124	117	.		. .	64,433	55,793	..	..
Czechoslovakia	18	18	19	96 9	93 8	10,694	12,711	12,005	84.1	89 1
Yugoslavia .	141	132	83	107 4	171 1	...	114,532	64,473	. .	...
U. S S. R	4) 1,511	1,517	1,812	99 6	83 4	.	..	367 992	.	.
Syria & Lebanon		5	6	...	. .	...	3,237	3,410	. .	. .
				Hempseed.						
Germany . .	19	14	2	133 2	775 6	11,089	7,604	4 308	145 8	257 4
Austria	3)	3)	3)	95 2	120 0	132	127	104	104 2	126 8
Bulgaria .	21	16	13	132 0	162 1	9,714	5,325	3,755	182 4	258 7
France	9	9	7	95 7	126 7		.	1 859	.	..
Italy . .	—	—	—	—	—	6,100	7 758	4 620	78 6	132 0
Poland	85	83	80	101 4	106.0	...	42,896	39,009	...	...
Romania . . .	...	124	117	.	.	...	50,919	43,865		. .
Czechoslovakia . .	18	18	19	96 9	93.8	7,477	8,379	7,918	89.2	94 4

1) Corresponding data of production, expressed in terms of air-dried stalks (Rohstengel), are as follows: 1937 — 76,567,000 lb; 1936 — 49,644,000 lb 1935 — 41,191,000 lb — 2) Year 1935 — 3) Area less than 500 acres. — 4) Area forecast by the Plan

Current information on hops.

Yugoslavia: In Slovenia the hops harvest this year has been quite satisfactory; most of the crop was sold at good prices. Lately however, the prices of hops have dropped considerably and it is estimated that 1/5 of this year's production in Slovenia (at Zalec) remains unsold. In Bačka hop production was rather poor both in quantity and quality. Although the Yugoslavian beer industry has this year required a larger supply of hops than in previous years, it is still very far from being able to absorb much of the unsold stocks, as the annual internal consumption of hops is not more than 5 to 6 per cent. of the annual production.

Area and production of hops.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100				1936 = 100	Average = 100
	1,000 acres					1,000 pounds				
Germany	22.7	25.4	23.6	89.5	96.4		22,271	15,285	...	...
Austria	...	0.1	0.1			...	60	98	...	...
Belgium	2.3	2.4	1.9	95.9	122.8	...	3,172	1,924	...	...
France	4.3	4.7	4.8	91.1	88.6	5,202	3,685	3,439	141.2	151.3
Hungary	...	0.3	0.3		...	...	199	166	...	...
Poland	8.9	8.3	1) 6.3	107.0	141.8		4,268	1) 3,220	...	
Romania		0.1	0.1	...	...		22	46		
United Kingdom Engl. and Wales	18.1	18.3	17.8	98.8	101.4	...	28,224	24,192		
Czechoslovakia	28.5	29.1	28.0	98.0	102.0		26,634	17,994	...	...
Yugoslavia	8.5	6.8	5.2	125.4	162.9	...	4,327	3,175	...	
U.S.S.R.	2) 12.4	10.0	1) 1.8	124.3	694.9	—	—	—	—	—
Canada	...	1.1	1.0		...	...	1,603	1,334	...	...
United States	35.0	31.5	29.9	111.1	117.1	44,024	23,310	36,426	188.9	120.9

1) Average 1932 to 1935 — 2) Area forecast by the Plan

Current information on tobacco.

Greece: In No 496 of the Official Journal of the Government, there was recently published the law regulating tobacco growing in 1938. Under these regulations the maximum area for tobacco growing has been fixed for the various regions. The distribution by provinces will be announced later by a decree of the Ministry of Agriculture. The growing of tobacco in 1938 is forbidden, under the same regulations, in localities where it was not grown in 1937 and in localities where in the last 4 years the acreage has not exceeded 12 acres. No area will thenceforward be allowed to grow tobacco without previous authorization from the authorities.

Canada: Most of the tobacco grown in Canada comes from western Ontario; Norfolk County is the main centre of production. The acreage planted in Ontario (57,100 acres) has never been so large as this year, when it was 24 per cent. higher than in 1936. The increase this year is mainly in light tobacco, which has increased 37 per cent.

Area and production of tobacco.

COUNTRIES	AREA					PRODUCTION				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 = 100	Average = 100				1936 = 100	Average = 100
	1,000 acres					1,000 pounds				
Albania	...	4	3	...	...	...	3,182	2,613	...	...
Germany 1)	32	32	29	101.4	111.8	...	72,501	66,015	...	...
Belgium	6	7	7	93.1	87.1	...	13,366	15,115	...	...
Bulgaria	101	106	69	94.7	146.3	69,055	93,098	53,785	74.2	128.4
Greece	226	273	187	82.7	120.7	140,624	178,506	94,883	78.8	148.2
Hungary	35	37	49	96.1	71.3	46,751	50,327	61,474	92.9	76.1
Italy	80	80	92	99.8	86.8	94,799	96,783	100,909	97.9	93.9
Poland	...	15	12	...	...	...	23,753	18,432	...	...
Romania	...	45	32	...	...	...	33,219	19,227	.	...
Switzerland	...	1	1	...	...	...	1,543	2,088	...	...
Czechoslovakia	24	24	24	98.6	99.1	...	33,229	30,860	...	...
Yugoslavia	52	45	37	115,7	142,3	...	36,650	23,939	...	...
U. S. S. R.	503	501	510	100.3	98.6	...	608,478	2) 354,728	...	...
Canada	65	55	49	118.9	134.0	71,352	46,084	48,701	154.8	146.5
United States	1,690	1,436	1,596	117.7	107.7	3) 1,506,000	1,153,083	1,266,355	130.6	118.9
Japan	85	87	86	98.7	99.7	142,375	133,358	145,813	106.8	97.6
Palestine	...	7	4	...	..	...	...	1,546	...	...
Syria and Lebanon	...	16	14	...	...	...	11,925	7,203	...	...
Turkey	...	148	124	...	...	138,892	99,208	77,690	140.0	178.8
Algeria	53	55	54	96 0	97.8	. .	38,678	39,975	...	...

1) Production for sale. — 2) Average 1931 to 1934 — 3) Report of 1st December

compared with last year. A large part of this increase is in what is called the new region, mainly in Norfolk County but lately also extended to Oxford County and Brant County. The Tobacco Service of the Division of Experimental Farms of the Federal Ministry of Agriculture has largely contributed to this progress, not only in developing plantations and production, but in improving varieties which enabled planters to satisfy the changing and ever more exacting demand of the market.

The November estimates of area harvested and production of tobacco in 1937 compared with the final figures for the two preceding years are as follows.

CLASSIFICATION	Area *in acres*			% 1937 — 1936 = 100	Production *in thousand pounds*			% 1937 — 1936 = 100
	1937	1936	1935		1937	1936	1935	
Bright flue-cured	49,444	35,879	30,922	137.8	53,577	24,565	35,199	218 1
Burley	6,142	7,996	8,223	76.8	7,000	9,762	10,549	78.7
Dark, air cured or fire cured	2,681	2,465	2,300	108.8	2,668	2,700	2,760	98.8
Type cigar	4,827	4,800	2,754	100.6	5,852	4,824	3,443	121.3
Large pipe	1,396	3,220	1,963	43.4	1,710	3,923	2,022	43.6
Small pipe	860	605	708	142.1	545	310	500	175.8
TOTAL	**65,350**	**54,965**	**46,870**	**118.9**	**71 352**	**46,084**	**54.473**	**154.8**

United States According to the November report, the estimates of area harvested and production of tobacco in 1937 compared with the final figures for the two preceding years are as follows

CLASSIFICATION	Area thousand acres			% 1937 — 1936 = 100	Production thousand pounds			% 1937 — 1936 = 100
	1937	1936	1935		1937	1936	1935	
Flue cured	958.4	864.4	874.0	110.9	835,713	682,850	811,194	122.4
Fire cured	141.0	126.6	142.6	111.4	115,451	99,666	118,194	115.8
Air-cured, light	456.1	338.1	315.9	134.9	386,777	247,854	248,858	156.1
Air cured, dark	48.4	34.2	36.6	141.5	41,810	24,646	31,020	169.6
Cigar filler	42.1	37.8	37.8	111.4	46,910	47,270	46,793	99.2
Cigar binder	34.0	26.4	22.1	128.8	48,470	41,198	33,355	117.7
Cigar wrapper	10.2	9.0	8.0	113.3	10,017	9,599	7,795	104.4
TOTAL	**1,690.2**	**1,436.5**	**1,437.1**	**117.7**	**1,485,148**	**1,153,083**	**1,297,210**	**128.8**

Palestine All operations connected with the curing and baling of tobacco have been concluded. Owing to a big increase in production, there are complaints from growers at the poor demand.

Algeria Tobacco production is slightly higher than last year, owing to the increase in acreage and in spite of a much poorer unit yield

Current information on other products.

Cacao.

Gold Coast and Togoland under British Mandate MAJOR CROP 1937-38 — No change is made in the crop estimate already published The crop situation in October was as follows

Ashanti — The heavy rains which continued during the first fortnight of the month seriously delayed harvesting and drying and caused the number of diseased pods to increase In the latter part of October weather conditions improved and harvesting, fermenting and drying progressed Movement however was abnormally slow, owing to disinclination to accept present prices It was estimated that 11.2 million lb had been marketed while 42.6 million lb. were in farmers hands at the end of October.

Western Province During the first half of the month, the situation was similar to that in Ashanti, but the favourable conditions which prevailed from the middle of October induced picking, fermenting and drying on a large scale It was estimated that this picking would probably account for 50 % of the crop, and although pods were somewhat over-ripe the quality as regards fermentation should be good owing to large quantities of cacao being available. Farmers were reluctant to sell at present prices It was reported that about 2.7 million lb had been marketed and 4.0 million were in farmers hands at the end of the month

Central Province — Weather conditions were unfavourable for harvesting and drying in the second part of the month as well as in the first fortnight. The delay in harvesting combined with the wet weather produced an increase in the number of diseased pods and it was stated that quality might be affected as a result Owing to low prices, farmers were disinclined to sell, it was estimated that 8·5 million lb had been marketed and 18·6 million remained in farmers' hands at the end of October

Eastern Province — Weather conditions, which had been unfavourable in the first half of October and had delayed harvesting and drying, improved to a certain extent during the latter part of the month, becoming moderately good for drying It was reported that quality remained good although cacao which was stored before being properly dried will need further sunning to prevent development of mould There was very little marketing and farmers' stocks were rapidly increasing More than half the cacao sold to the end of October had come from the Nsawam-Kibi area It was estimated that 33·6 million lb had been marketed and 42·6 million were in farmers' hands at the end of the month

Trans-Volta — In both northern and southern areas wet weather continued in October and interfered with harvesting drying and movement Towards the end of the month weather conditions improved in the southern area and harvesting was started, while in the northern section weather continued unfavourable for all operations It was confirmed that the bulk of the crop would not be ready for harvesting until December January In both areas dissatisfaction with prices retarded movement to a large extent It was estimated that 3·6 million lb had been marketed and 4·3 million were in farmers' hands at the end of the month

Stocks The quantity marketed to the end of October is very much below that for the same period last year while stocks in farmers hands show an increase Merchants stocks were estimated to be about 21 million lb less than at the end of October 1936

Movement Total exports from 1 October 1936 to 30 September 1937 were 678·2 million lb as compared with 657·3 million lb during the preceding crop year Movement in October was as follows

		October 1937	October 1936
		(million pounds)	
Railway off loadings Takoradi		7·5	24·5
Exports			
Takoradi		6·7	15·7
Accra		10·1	27·3
Other ports		5·3	11·9
	All ports	22·1	54·9
Eastern Frontier		0·3	0·6
	Total export	22·4	55·5

Nigeria It was reported in October that heavy rains had delayed the opening of the cacao season

Tea.

India In North India normal seasonable weather conditions continued in October and crop prospects were fair Production to the end of October was 17,010,000 lb larger than the outturn to the same date last year In South India weather in October continued unsettled and the north-east monsoon had not yet fully broken

Useful showers fell and crop prospects were fair. Outturn to the end of the month was 10.1 per cent ahead of that to the same date last year.

Nyasaland. Good prospects were reported in October from tea estates.

Coffee.

Brazil. According to the " Departmento Nacional do Café " the total quantity of coffee removed from the market from 1931 to 15 November amounts to 72,186,000 centals, of which 2,244,300 centals was destroyed during October and 432,100 centals in the first fortnight of November. Stocks of coffee in Brazilian ports on 30 November 1937 were 4,352,000 centals, of which 2,822,000 were in the port of Santos.

British Guiana: The crop condition of coffee plantations on 1 November was average.

Haiti. In October the crop condition of coffee plantations was good. Good rains fell in the south and west. In the north the weather was dry.

Dominican Republic. Weather conditions in October were favourable for coffee plantations.

Trinidad. It was reported in October that picking of the coffee crop would soon begin. A fairly good cop was expected.

Kenya. The crop condition of coffee plantations on 1 December was good.

Madagascar. According to the most recent estimate, bearing area this year is about 222,000 acres against 208,000 in 1936-37 and 161,000 on the average of the five years ending 1935-36, percentages, 107.1 and 138.5. The corresponding production of marketable coffee is estimated at about 661,000 centals against 613 000 and 356,000 percentages, 108,0 and 185,7.

Sierra Leone. In October weather conditions were favourable for coffee crops, the condition of which was considered average on 1 November.

New Caledonia. In October the condition of coffee plantations was excellent.

Groundnuts.

Italy. According to the most recent estimate, area cultivated to groundnuts this year is 1,843 acres against 1,278 in 1936, percentage 144.3. The corresponding production is estimated at 31,209 centals against 22,399 in 1936, percentage, 139.3.

Java and Madura. The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details of the groundnut area:

	1937 acres	1936 acres
Area harvested in October	68,000	69,400
Area harvested from 1 January to 31 October .	467,000	465,000
Area of standing crops at the end of October .	157 200	132,200

Egypt: Harvesting of groundnuts is near its end, and, the yield per acre is about 5 per cent above the average.

Nigeria: Marketing of new crop groundnuts was expected to begin about the middle of October but, though the acreage under cultivation was reported to be greater than last year, the yield per acre was not expected to be so good, as the rainfull this year has been smaller than usual.

Colza and sesame.

Germany: Crop conditions on 1 December, in the system of the country, compared with those of 1 November 1937 and 1 December 1936, were as follows: winter colza 2.3 (2.4 and 2.8), winter rape 2.4 (2.4 and 2.8). According to the latest estimates, production of colza in 1937 was 1,492,000 centals (2,984,000 bushels) against 1,779,000 centals (3,558,000 bushels) in 1936 and 1,784,000 centals (3,567,000 bushels) in 1935; percentages, 83.9 and 83.6. Corresponding figures for rape were as follows: 256,000 centals (12,800 short tons), 430,000 centals (21,500 short tons) and 448,000 centals (22,400 short tons), percentages, 59.5 and 57.2.

Italy: According to the most recent estimate, area cultivated to sesame this year is 1,110 acres against 1 085 in 1936; percentage, 102.3. The corresponding production is estimated at 9,760 centals against 9,453 in 1936; percentage, 103.3.

Poland: The crop condition of winter colza on 15 November was 3.8, as at 15 October, against 3.3 on 15 November 1936

Romania: On 10 December, winter colza was growing well.

Japan: According to the most recent estimate, production of colza this year is about 2,917,000 centals (5,834,000 bushels) against 2,671,000 (5,342,000) in 1936 and 2 143,000 (4,286,000) on the average of the five years ending 1935, percentages, 109.2 and 136.1

Current information on fodder crops.

Germany: Although in the east meadows and pastures have improved in the west, clover fields and pastures are considered below average. Owing to the fine weather of this autumn the stabling of livestock was finished as late as the first decade of December. Crop condition on 1 December, in the system of the country, compared with the figures for 1 November 1937 and 1 December 1936, was as follows clover 2.7 (2.7 and 2.7); pasture 2.9 (3.0 and 2.9). According to the latest estimates, the production of clover hay is about 171,172,900 centals (8,508,590 short tons) against 206,474,400 centals (10,323,600 short tons) in 1936 and an average in the five years 1931 to 1935 of 185,432,600 centals (9,271,500 short tons); percentages, 82.4 and 91.8. Corresponding figures for alfalfa hay are: 65,884,700 centals (3,294,190 short tons), 66,065,800 (3,303,200 short tons) and43,921,800 centals (2,196,100 short tons); percentages, 99.7 and 150.0. Production of hay from permanent meadows (irrigated and non-irrigated) is estimated at 590,261,000 centals (29,513,000 short tons) against 613,281,000 centals (30,664,000 short tons) last year and an average of 504,850,000 centals (25,242,000 short tons); percentages, 96.2 and116.9.

Belgium: Mangels on the whole have given satisfactory yields, while those of turnips and chou-moellier are very high owing to lack of frost during November.

France: The revised estimates of area of the main fodder crops and of permanent meadows for hay and the first estimates of production are as follows:—

Area (thousand acres).

	1937	1936	Average 1931-35	% 1937	
				1936 = 100	Average = 100
Tuber and root crops for fodder:—					
Jerusalem artichokes	365	365	331	99.9	110.1
Mangels	2,178	2,279	2,114	95.6	103.1
Turnips and swedes	386	486	513	79.5	75.4
Total (1)	2,929	3,130	2,958	93.6	99.0
Leguminous and gramınaceous crops from rotation meadows:—					
Alfalfa, clover and sainfoin	7,356	7,366	7,280	99.9	101.0
Grasses grown alone or mixed with leguminous crops	1,554	1,429	1,300	108.8	119.6
Annual green fodder	1,844	1,857	1,781	99.3	103.6
Total	10,754	10,652	10,361	95.7	97.4
Permanent meadows for hay (2)	13,279	13,870	13,630	95.7	97.4

Production (thousand centals)

	1937	1936	Average 1931-1935	% 1937	
				1936 = 100	Average = 100
Tuber and root crops for fodder:—					
Jerusalem artichockes	41,795	54,120	50,944	77.2	82.0
Mangels	637,827	756,484	664,685	84.3	96.0
Turnips and swedes	60,579	85,041	90,452	71.2	67.0
Leguminous and gramınaceous crops from rotation meadows:—					
Alfalfa, clover and sainfoin (dried hay)	259,970	260,321	252,301	99.9	103.0
Grasses grown alone or mixed with leguminous crops (dried hay)	45,013	43,007	37,023	104.7	121.6
Annual green fodder	296,311	314,694	271,734	94.2	109.0
Permanent meadows for hay (dried hay)	405,916	420,571	397,521	96.5	102.1

The preceding table does not include, among annual crops, cabbage for fodder (an average of 604,000 acres and 152,596,000 centals or 7,630,000 short tons in 1931-1935, 642,000 acres and 165,020,000 centals or 8,251,000 short tons in 1936), and nor does it include permanent grasses, pastures and grazings (a total of 14,186,000 acres, 281,574,000 centals and 14,079,000 short tons on the average of 1931-1935, and 14,548,000 acres, 286,660,000 centals and 14,333,000 short tons in 1936).

The 1936-37 agricultural year was unfavourable for tuber and root crops for fodder so that both the acreage and the unit yield were lower; on the other hand it was fairly good for green fodder, and in general the production of fodder crops seems almost sufficient for requirements, particularly in view of the rather mild autumn which enabled stock to pasture quite late in the season.

The relatively sharp fall in the acreage of permanent meadows for hay should be noted, for this acreage had increased almost continuously for forty years; this year's figure is the lowest since 1929 inclusive.

The mild temperatures of November favoured sprouting of grass, which was still plentiful at the end of the month in most districts.

Greece: According to the estimate of the month of December, the production of the main fodder crops was as follows.

		1937	1936	Average 1931-1935	% 1937 1936 = 100	% 1937 Average = 100
Rotation meadow (dried hay) . . .	(000 centals)	2,417	2,539	1,761	95.2	137.2
	(000 sh. tons)	121	127	88		
Clover (dried) . .	(000 centals)	1,786	1,722	1,067	103.8	167.3
	(000 sh. tons)	89	86	53		
Permanent meadow (hay).	(000 centals)	3,136	3,571	2,316	87.8	135.4
	(000 sh. tons)	157	179	116		

Italy. The growth of fodder crops was good in the first fortnight of November. However, rain and the condition of the soil prevented the use of pastures in several areas of northern Italy The condition of fodder crops was generally good in the second half of November

Poland: On 15 November crop condition of clover was 3.1 against 3.1 on 15 October and 3.1 on 15 November 1936.

Portugal Weather in October was favourable for fodder crops and their condition at the end of the month was good.

United Kingdom: The weather during November in England and Wales was generally open and dry, with temperatures average or somewhat below normal. Mangels were lifted under good conditions The roots, though smaller than usual, were of sound quality. The latest production estimate for England and Wales is 82,163,000 centals (4,108,000 short tons), which is 21.7 per cent. smaller than last year's crop of 104,922,000 (5,246,000) and 17.8 per cent. less than the average for 1931-1935 of 99,908,000 (4,995,000). Swedes and turnips are reported to be a moderate crop and the roots are, on the whole, rather small. There were reports of mildew from a number of districts. The latest estimate for production in England and Wales is 106,154,000 centals (5,308,000 short tons), which is 15.1 per cent. less than last year's figure of 124,970,000 (6,248,000) and 21.3 per cent. less than the average of 133,132,000 (6,657,000). The first estimate of production of hay from permanent meadows in England and Wales is 111,261,000 centals (5,563,000 short tons), against 106,019,000 (5,301,000) in 1936 and an average for 1931-35 of 103,506,000 (5,175,300). The corresponding estimate for hay from rotation meadows is 47,968,000 (2,398,000) against 37,498,000 (1,875,000) in 1936 and an average of 43,389,000 (2,169,000); percentages, 127.9 and 110.5.

The second estimate of production of turnips and swedes in Scotland at 55,090,000 centals (6,073,000 short tons) is up 5,644,000 (282,000) on the first estimate and is slightly above the average of 1931 to 1935. The first estimate of production of mangels in Scotland is 1,814,000 centals (91,000 short tons), which is 13.9 per cent. higher than last year (1,593,000 or 80,000) and 153.3 per cent. higher than the five-year average (716,000 or 36,000).

United States: According to the most recent estimate, the area of wild hay cut this year was about 11,522,000 acres against 10,694,000 acres in 1936 and 11,797,000 acres on the average of the five years ending 1935, percentages, 108.0 and 97 9. The corresponding production is estimated at about 186,040,000 centals (9,302,000 short tons) against 138,300,000 centals (6,915,000 short tons) and 178,440,000 centals (8,922,000 short tons), percentages, 134 5 and 104.3. The area of all tame hay was about 54,792,000 acres against 57,055,000 acres in 1936 and 55,891,000 acres on the average of the five years ending 1935, percentages, 116.5 and 108.8. The corresponding production is estimated at about 1,475,700,000 centals (73,785,000 short tons) against 1,266,180,000 centals (63,300,000) short tons and 1,356,850,000 (67,843,000), percentages, 116 5 and 108 8.

Algeria: The germination of rotation fodder crops sown early was proceeding in good conditions at the end of November, except for alfalfa which was suffering from drought Drought also on the whole checked the growth of the crops, particularly of mixtures of vetches and oats, especially in the department of Constantine. In Constantine also sowing of Egyptian clover was much delayed. Permanent grasses were about normal for the time of year in the department of Alger and Oran, but were very unsatisfactory in Constantine, where meadows had not been sufficiently irrigated In the south pastures were on the whoole good, but vegetation was not vigorous and further rain was needed at the end of November, only pastures in the Géryville district were long and thick

Egypt: Sowing of clover (*bersim*) was over, and, cutting of the early-sown cultivations was begun the first time. In view of the attack by the cotton worm (*Prodenia litura*) the crop condition is slightly under the average. The attack was spread out in many scattered areas mostly in the provinces of Lower Egypt, it was severe in many fields, which necessitated their resowing. The attack gradually waned by the end of November and almost disappeared.

Tunisia Lack of rain in October and November made difficult and restricted sowing of fodder crops At the and of November pastures were not good or were even poor in the north (Bizerta area), in the centre (Tunis and Kef) districts' they were hardly sufficient to feed flocks, in the south (Susa and Sfax) they were almost dried up. In the latter area, many cactus plantations have been used as a reserve for fodder in years of scarcity

LIVESTOCK AND DERIVATIVES

Pig population in Denmark.

CLASSIFICATION	1937 20 Nov.	9 Oct	28 Aug.	17 July	19 June	8 May	27 March	13 Feb	2 Jan.	1936 21 Nov.	10 Oct.	29 Aug.
	(Thousands)											
Boars for breeding.	18	19	20	19	21	21	21	21	22	22	23	23
Sows in farrow for first time . . .	51	43	49	66	70	74	68	56	53	52	58	77
Other sows in farrow	139	130	148	157	164	159	162	172	188	185	182	178
Sows in milk . . .	65	83	91	87	82	89	92	84	86	90	108	122
Sows not yet covered (and not for slaughter)	24	29	29	25	26	26	26	29	28	39	42	39
Sows for slaughter.	16	22	14	12	10	11	12	18	19	26	28	22
Total of sows . . .	*295*	*307*	*331*	*347*	*352*	*359*	*360*	*359*	*374*	*392*	*418*	*438*
Sucking pigs not weaned	550	734	794	766	707	761	751	669	691	730	892	1,006
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg . .	839	848	811	763	775	752	734	774	874	1,010	1,024	947
Pigs of 35 and under 60 kg. .	685	668	638	713	656	625	657	682	739	811	756	696
Fat pigs of 60 kg and over .	594	513	573	475	506	519	536	519	523	551	556	608
Total pigs . . .	*2,981*	*3,089*	*3.167*	*3 083*	*3,017*	*3.037*	*3,059*	*3.024*	*3,223*	*3,516*	*3,669*	*3,718*

Livestock in Italy.

We give below the numbers of livestock in Italy on March 1937 and comparative figures for March 1936 and March 1930 (Census):—

	March 1937	March 1936	March 1930
Horses	796,490	810,270	942,475
Asses	799,830	805,310	904,625
Mules	416,100	413,720	456,406
Hinnies	8,850	8,100	9,432
Cattle	7,288,810	7,235,000	7,088,752
Sheep	9,095,090	8,802,470	10,268,119
Goats	1,803,570	1,704,630	1,892,736
Pigs	2,813,920	3,205,690	3,318,075

Livestock in Latvia.

CLASSIFICATION	26 June 1937	26 June 1936	26 June 1935	15 June 1934	15 June 1933
Horses	*391,948*	*388,770*	*384,358*	*375,200*	*370,200*
Under 1 year	22,025	18,871	17,468	15,100	14,420
Colts 1 year old and under 3 years	30,825	28,529	28,292	28,480	29,040
Horses 3 years old and under 15 years	257,820	270,742	261,221	293,170	290,920
Horses 15 years old and over	81,278	70,628	77,377	38,450	35,820
Cattle	*1,209 949*	*1,261,442*	*1,274,914*	*1,157,600*	*1,155,800*
Calves under 1 year old	158,162	180,908	200,084	169,750	165,500
Bulls and oxen from 1 to 2 years	25,968	29,954	31,400	23,440	24,150
Bulls and oxen of 2 years and over	11,202	12,681	12,662	11,620	12,350
Heifers of 1 year and over	161,246	157,641	155,807	145,690	150,900
Milk cows	873,353	880,258	874,961	807,100	802,900
Sheep	*1,333,999*	*1,351,632*	*1,346,718*	*1,208,900*	*1,114,300*
Lambs up to 1 year	737,440	736,758	735,829	646,900	594,800
Sheep 1 year and above	596,559	614,874	610,889	562,000	519,500
Pigs	*739,317*	*674,374*	*803,101*	*686,400*	*585,900*
Sucking pigs under 2 months	200,798	198,705	220,424	204,270	172,010
Pigs from 2 to 6 months old	297,158	255,760	305,325	243 760	209,130
Boars and sows of 6 months and over	79,250	78,950	86,408	93,980	81,770
Other pigs of 6 months and above	162,111	140,959	190,944	144,390	122,990

Livestock in Curaçao and dependencies.

YEARS	Horses	Asses	Mules	Cattle	Sheep	Goats	Pigs
1936	272	4,916	55	5,042	40,517	69,379	3,790
1935	314	4,914	106	5,116	36,084	66,857	5,123
1934	265	4,832	68	4,488	36,360	65,560	3,887
1933	277	4,935	64	4,070	36,107	65,574	4,357
1932	238	4,427	47	3,452	25,782	54,321	3,763
1931	280	4,132	106	3,215	16,659	44,673	3,063
1930 1)	101	4,000	45	2,250	18,338	48,761	2,707

1) Not including St Martin

The cattle and lamb feeding situation in the United States.

Movements of cattle during October continued to point to a considerable increase in cattle feeding in the Corn Belt states in the winter and spring of 1937-38 over a year earlier, but numbers will not be large in comparison with the numbers fed in most years before the 1934 drought. Much the largest proportion on record of cattle movements into the Corn Belt have been going into the States east of the Mississippi.

Cattle feeding in Texas and Oklahoma and other Cotton Belt states is also likely to be larger as there are abundant supplies of cotton seed cake and hulls.

The movements of feeder lambs in October this year were considerably larger than in October last year, and the total number of lambs to be fed this season is expected to be considerably larger than last, particularly in the Corn Belt, in Texas and in Colorado. The main movement of lambs, from Texas to the Corn Belt and other States, have been considerably larger from July to the end of October this year than last

Livestock and poultry in Taiwan.

YEARS	Horses	Cattle	Sheep	Goats	Pigs
31 December 1936	590	78,629	155	75,380	1,813,049
31 » 1935	533	84,659	257	78,350	1,873 209
31 » 1934	411	87,991	242	83,699	1,836,169
31 » 1933	347	84,021	313	87,029	1,806 489
31 » 1932	333	80,351	367	90,084	1,753,912
31 » 1931	301	86,884	307	93,398	1,738,874
31 » 1930	325	92,322	341	89,430	1,750,464

YEARS	Buffaloes	Fowls	Geese	Ducks	Turkeys
31 December 1936	292,326	6,805,225	392,451	1,861,768	24,434
31 » 1935	305,795	6,466,312	370,759	1,771,963	18,496
31 » 1934	306,874	6,198,693	336,483	1,616,807	15,114
31 » 1933	302,249	5,746,514	319,606	1,496,165	11,219
31 » 1932	286,255	5 266,796	306,303	1,379,364	9,234
31 » 1931	296,158	5,051,219	263 307	1,343,327	6 631
31 » 1930	298,536	4,856,211	252,661	1,092,604	5,143

Current information on livestock and derivatives.

France Foot-and-mouth disease continued in some districts and loss appears to be considerable. The disease attacked flocks of sheep at the lambing period and losses of lambs are particularly high. The mild temperatures were favourable for milk production but foot-and-mouth disease has appreciably reduced the yield.

The stock had still abundant feed on the pastures in November save in upland districts.

Hungary· On 20 November, supplies of fodder were on the whole sufficient, and the health of livestock was satisfactory.

Irish Free State· The weather during November was dry and mild and exceptionally favourable for feeding Fodder was adequate for all normal requirements. Milk production was slightly below average.

Latvia: Cows were stabled generally during November. Ordinary forage is of mediocre quality and the supplies available are smaller than last year Supplies of concentrated food are adequate. The milk yield increased in the autumn and reached a level of 5 to 10 per cent. above that of last year.

Netherlands. In November, feed for milch cows was fairly good to good. Compared with November last year milk production is about 3 per cent. lower. In Gelderland milk production was 3 per cent. higher; the decrease in other provinces was as follows: 2 to 3 per cent in Friesland, Drente, Overijsel, South Holland and North Brabant, 5 per cent. in Groningen, 7.5 per cent. in Utrecht and 15 per cent. in Zeeland. In North Holland and Limburg, milk production was hardly different from normal.

Romania. On 10 December the health of livestock was on the whole satisfactory. At this date, in many districts small animals, particularly sheep, could still feed in the fields.

United Kingdom. Cattle and sheep have made fair progress during the month. Pastures were about average in November for the time of year. It is anticipated that supplies of winter keep will be sufficient but straw may be scarce later. Milk yields during November showed a seasonal fall.

Algeria. The health of animals and feeding conditions improved during November. Foot-and-mouth disease is abating nearly everywhere and, in some districts, has disappeared. The condition of breeding stock continued good during the month. They improved on the whole, though foot-and-mouth disease and its effects prevented recovery in many cases. The situation was good at the end of November on the coast, in Tell and on the high plateaux of Alger and Oran where there was plentiful pasture for sheep and cattle. In Constantine, owing to the insufficiency of pasture, animals failed to maintain condition but mortality was not abnormal. In the south, the situation made a further improvement with variations according to region. In some districts, sheep were improving while in others, ewes and spring lambs remained thin. However, concern was felt only in two small areas.

Tunisia. Owing to lack of rain, feed conditions for livestock had become difficult at the end of November.

Union of South Africa. Following the exceptionally dry winter this year, conditions were very bad in many parts of the Union on 1 November, with prospects of even worse conditions. Stock were dying in some parts, and in many districts they had to be fed on growing cereal or maize crops. The drought was serious in the north-west of Cape Province, in the Karroo, parts of the south coast, Griqualand West, on the north border of Cape Province and in the Karroo. Trekking took place from many of these areas to winter rainfall areas. The only parts of Cape Province not seriously affected by the drought were in the south-west, where conditions were very good following October rains, and in the north-east where the drought was somewhat relieved by rain. Flocks were already shorn in the south-west and clips were of excellent quality. Elsewhere wool clips were of good quality but light owing to drought. In the rest of the Union, namely Natal, Orange Free State and Transvaal the drought was relieved at the beginning of October by rain, but not before heavy stock losses had occurred, particularly in Natal. Moreover, later it became dry again and much more rain was needed.

Current information on sericulture.

Production of fresh cocoons

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1937	1936	Average 1931 to 1935	% 1937		1937	1936	Average 1931 to 1935	% 1937	
				1936 % 100	Average – 100				1936 = 100	Average = 100
	1 000 ounces					1 000 pounds				
Bulgaria	31	26	26	119 5	118 0	3 616	3 025	2 924	119 6	123 7
France	13	13	17	96 5	74 3	1 412	1 486	2 010	95 1	70 3
Greece	62	57	58	107 8	105 8	6 617	5 993	4 839	110 4	136 8
Italy	1) 542	465	510	—	—	70 438	71 257	67 683	98 9	104 1
Chosen s)	206	208	220	98 7	93 6	31 975	32 812	31 073	97 4	102 9
Chosen t)	148	140	131	105 7	112 8	18 173	18 009	14,693	100 9	123 7
Japan s)	2 339	2 295	2 726	101 9	85 8	376 198	339 980	399 551	110 7	94 2
Japan t)	2 713	2 843	3 130	95 4	86 7	307 822	343 183	356 059	89 7	86 5
Syria and Lebanon	32	32	49	100 5	66 2	2 538	2 108	3 784	120 4	67 1
Totals	**6 086**	**6 079**	**6.867**	**100 1**	**88 6**	**818 789**	**817.853**	**882 616**	**100 1**	**92 8**

s) Spring cocoons — t) Summer autumn cocoons 1) Approximate figure referring to the quantity of eggs distributed to producers

TRADE

Wheat. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	OCTOBER				THREE MONTHS (August 1 October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries										
Bulgaria	498	659	0	0	1,167	1,655	0	0	4,625	0
Hungary	355	1,335	0	0	1,188	5,195	0	0	13,121	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland-Dantzig . .	0	125	0		0	830	0	0	1,131	0
Romania	. .	. .	..	...	1) 5 264	1) 7,056	1) 0	1) 0	22,528	1
Yugoslavia . . .	451	1,242	0	0	2,199	4 390	0	0	10,781	0
U. S. S. R. . . .	...	. .	.	..	1) 5,313	1) 8	1) 0	1) 0	758	0
Canada	6,033	16,151	137	40	13 502	41,278	215	43	104,917	88
Argentina . . .	1,448	3,558	—	—	5,561	8,125	—	—	93,598	—
Chile	...	. .	. .	.	2) 0	2) 0	2) 0	2) 0	0	0
Uruguay.	.	. .	..	..		.	.	..	1 874	27
India: by sea 4) . .	786	1,195	4	0	3,031	2,236	17	3	9,992	8
» : by land 4) .	. .	.	...	.	..				549	226
Iraq .	122	224	0	0	314	392	0	0	2 982	0
Iran .	.	.			2) 189	2) 75	2) 0	2) 0	538	0
Manchukuo .	..	.	—	—	2) 4	2) 48	—	—	410	—
Syria & Leb.: Fr m t	.	.		. .	1) 2	1) 109	1) 29	1) 0	827	136
Turkey	.		—	—	1) 433	1) 128	—	—	2,814	—
Algeria	566	550	9	1	1,344	1,505	40	16	3,566	626
Egypt	...	.	..	..	1) 3	1) 1	1) 0	1) 0	366	0
French Morocco .	...	...	..	..	1) 135	1) 17	1) 0	1) 25	404	1,325
Tunis	372	2	5	30	912	15	35	140	205	692
Australia	1,848	955	0	0	4,886	6,134	0	0	44,177	0
Importing Countries										
Germany .	0	1	1 357	78	0	42	6,726	258	42	18 610
Austria	1	1	229	472	3	3	543	1 168	10	5,293
Belgo-Luxemb E U	319	94	2 557	2,071	661	222	7,015	7,446	2,609	26,247
Denmark	34	6	303	468	93	37	822	1 122	406	4,027
Spain	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	0	0	10	28	20	0	84	153
Finland	0	0	85	88	0	0	258	403	0	1,530
France	1	43	965	499	233	743	2 400	1,794	1,132	8,599
Greece . .	0	0	547	1,073	0	0	2,082	2,921	0	12,887
Irish Free State	0	0	703	959	0	0	1,945	1,885	0	7,320
Italy	18	40	151	1,287	21	48	1 571	2 433	70	40,812
Latvia	0	0	0	0	0	0	176	0	0	596
Norway	0	0	120	246	0	0	623	605	0	3 847
Netherlands . . .	4	17	1 149	760	15	21	3,365	2 283	55	11,398
Portugal	0	0	4	0	0	0	6	13	0	22
United Kingdom .	70	69	9,827	9,938	383	327	26,831	26,820	1,810	110,684
Sweden	1	133	104	132	19	761	306	333	795	1,148
Switzerland	0	0	848	967	1	2	2,112	2,630	5	10,636
Czechoslovakia . .	0	0	1	1	362	24	38	4	5,211	192
United States . . .	4,263	555	209	3,205	9,141	981	1,002	11,113	3,172	26,092
Brazil	—	—		...	—	—	2) 1 813	2) 1 987	—	21,961
Colombia .	—	—		. .	—	—	.		—	3) 312
Peru	...		.	. .		.	...	.	0	2,555
Burma 5)	0	—	9	—	0	—	42	—	0	32
Ceylon.	—	—	15	10	—	—	34	32	—	118
China	...	...	..	...	1) 0	1) 406	1) 0	1) 111	775	1,060
Chosen . .	...	...	.	...	1) 1	1) 0	1) 0	1) 26	2	50
Taiwan .	—	—	. .	. .	—	—	2) 0	2) 0	—	7
Indo-China	..	...	..	.	2) 0	2) 0	2) 0	2) 0	0	2
Japan	—	—	.	.	—	—	.	.	—	4) 3,942
British Malaya . .	.	...	...	.	1) 0	1) 0	1) 2	1) 2	2	7
Palestine: Br. m. t .	. .	...	.	. .	1) 4	1) 0	1) 22	1) 53	6	1,091
Union of South Afr	...	...	.	...	2) 2	2) 0	2) 1	2) 1	586	13
New Zealand . . .	...	...	...	..		..	...	...	0	273
Totals . . .	**17,190**	**26,954**	**19,338**	**22,325**	**56,400**	**82,842**	**60,091**	**65,670**	**336,935**	**324,642**

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1) Up to 30 September — 2) Up to 31 August — 3) Up to 30 June — 4) Up to 31 May. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the trade direct trade of Burma with other foreign countries — 6) From 1st April 1937.

COUNTRIES	October				Three months (August 1-October 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
	Wheat flour. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	0	4	28	0	1	37	296	1	134	478
Bulgaria	4	25	0	0	19	44	0	0	86	0
Spain	—	—	—	—	—	—	—	—	—	—
France	160	230	81	116	448	620	232	318	2,845	847
Hungary	80	152	0	0	224	348	0	0	1,352	0
Italy	244	287	15	3	589	1,152	38	17	4,417	38
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland - Dantzig	0	201	0	0	0	521	0	0	1,449	0
Romania	...	...	...	...	1) 0	1) 1	1) 0	1) 0	16	0
Yugoslavia	34	13	0	0	67	37	0	0	123	0
U. S. S. R.	...	...	...	...	1) 315	1) 275	1) 22	1) 15	1,464	45
Canada	659	909	13	15	1,826	2,411	35	38	8,870	112
United States	929	630	0	12	2,518	2,032	1	25	7,628	71
Argentina	187	142	—	—	446	449	—	—	2,148	—
Chile	...	...	...	...	2) 0	2) 0	2) 4	2) 0	0	101
Uruguay	...	...	...	...	2) 0	2) 31	2) 0	2) 0	121	0
Chosen	...	...	...	...	1) 12	1) 7	1) 0	1) 0	52	0
India: by sea 5)	108	33	0	2	338	108	1	8	855	21
Iraq	11	12	0	0	34	29	0	0	90	0
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	0
Japan	...	...	...	...	...	...	...	...	4) 1,663	4) 414
Algeria	49	91	4	5	132	195	14	12	554	80
French Morocco	...	...	...	...	1) 0	1) 7	1) 0	1) 0	10	0
Tunis	35	38	8	9	82	112	17	42	284	193
Australia	1,090	928	0	0	2,931	2,563	0	0	11,063	0
Importing Countries:										
Austria	1	3	33	51	6	6	74	138	49	512
Belgo-Luxemb. E. U.	8	4	7	9	15	29	15	44	78	103
Denmark	3	2	21	18	9	8	48	36	25	161
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	31	26	0	0	106	115	0	479
Greece	0	0	3	3	0	0	5	4	0	15
Irish Free State	0	0	12	18	0	0	37	39	0	140
Norway	0	0	77	146	0	1	101	224	1	902
Netherlands	95	0	116	98	158	8	323	362	433	1,422
Portugal	0	0	10	7	0	0	12	14	0	45
United Kingdom	158	223	775	619	407	615	2,136	2,029	2,042	9,494
Sweden	2	4	0	0	6	7	0	0	26	3
Czechoslovakia	21	1	0	2	216	2	0	3	348	9
Haiti	—	—	14	19	—	—	44	57	—	241
Brazil	—	—	...	...	—	—	2) 99	2) 73	—	959
Colombia	—	—	...	...	—	—	...	...	—	3) 11
Peru	...	...	...	...	...	...	...	...	0	31
Burma 6)	0	—	51	—	1	—	167	—	1	209
Ceylon	—	—	24	49	—	—	78	101	—	353
China	...	...	...	...	1) 0	1) 135	1) 83	1) 93	221	537
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 173	1) 157	—	991
Outer Provinces	—	—	...	...	—	—	1) 97	1) 102	—	650
Indo-China	...	...	...	...	2) 0	2) 0	1) 72	1) 86	0	422
British Malaya	...	...	...	...	1) 23	1) 25	1) 243	1) 246	142	1,494
Manchukuo	...	...	...	...	2) 43	2) 0	2) 263	2) 310	11	2,371
Palestine Br. m. t.	...	...	...	...	1) 0	1) 0	1) 76	1) 106	0	729
Syria & Leb.: Fr. m. t.	...	...	...	...	1) 14	1) 42	1) 7	1) 7	189	89
Egypt	...	...	...	...	1) 6	1) 0	1) 5	1) 6	30	54
Union of South Africa	...	...	...	...	2) 2	2) 0	2) 0	2) 1	5	10
New Zealand	...	...	...	...	...	...	...	...	1	44
Totals	3,878	3,932	1,323	1,227	10,888	11,861	4,924	4,829	48,826	24,879

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1) Up to 30 September. — 2) Up to 31 August. — 3) Up to 30 June. — 4) Up to 31 May. — 5) From 1st April 1937 the Indian statistics include the trade of India whit Burma, and exclude the direct trade of Burma whith other foreign countries. — 6) From 1st April 1937.

Total Wheat and Flour †). — Thousand centals (1 centals = 100 lb.).

COUNTRIES	October				Three months (August 1-October 31)				Twelve months (August 1-July 31)	
	Net Exports *)		Net Imports **)		Net Exports *)		Net Imports **)		Net Ex.*)	Net Im.**)
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Germany	—	—	1,394	73	—	—	7,119	168	—	19,027
Austria	—	—	270	536	—	—	631	1,342	—	5,754
Belgo-Luxem. E. U.	—	—	2 236	1,984	—	—	6,355	7,275	—	23,674
Bulgaria	504	692	—	—	1,192	1,714	—	—	4,740	—
Denmark	—	—	293	483	—	—	782	1,123	—	3,802
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	—	—	—	28	9	—	—	97
Finland	—	—	127	123	—	—	399	556	—	2,169
France	—	—	859	305	—	—	1,876	650	—	4,802
Greece	—	—	552	1,077	—	—	2,045	2,927	—	12,906
Hungary	463	1,538	—	—	1,487	5,659	—	—	14,924	—
Irish Free State	—	—	720	983	—	—	1,995	1,937	—	7,509
Italy	173	—	—	868	—	—	816	873	—	34,903
Latvia	0	0	—	—	—	—	176	0	—	596
Lithuania	0	0	—	—	0	0	—	—	0	—
Norway	—	—	222	439	—	—	758	902	—	5,047
Netherlands	—	—	1,173	873	—	—	3,571	2,734	—	12,661
Poland-Dantzig	0	394	—	—	0	1,524	—	—	3,062	—
Portugal	—	—	17	9	—	—	21	32	—	81
Romania	...	...	...	...	1) 5,264	1) 7,058	—	—	22,549	—
United Kingdom	—	—	10,580	10,396	—	—	28,753	28,380	—	118,805
Sweden	—	6	100	—	—	437	281	—	—	323
Switzerland 5)	—	—	848	967	—	—	2,111	2,628	—	10,632
Czechoslovakia	27	—	—	2	612	19	—	—	5,470	—
Yugoslavia	495	1,260	—	—	2,289	4,439	—	—	10,950	—
Totals Europe	*1,662*	*3,890*	*19,391*	*19,118*	*10,844*	*20,878*	*57,698*	*51,497*	*61,695*	*262,788*
U. S. S. R.	...	...	...	...	1) 5,704	1) 355	—	—	2,650	—
Canada	6,758	17 302	—	—	15,676	44,399	—	—	116,507	—
United States	5,291	—	—	1,825	11,496	—	—	7,456	—	12,839
Haiti	—	—	18	25	...	—	59	76	—	321
Argentina	1,697	3,747	—	—	6,156	8,725	—	—	96,325	—
Brazil	...	...	...	...	—	—	2) 1,945	2) 2,084	—	23,240
Chile	...	...	...	...	—	—	2) 5	2) 0	—	135
Colombia	...	...	...	...	...	...	...	...	—	3) 326
Peru	...	...	...	...	...	...	...	...	—	2,596
Uruguay	...	...	...	...	—	2) 91	2) 9	—	2,008	—
Burma 6)	—	—	76	—	—	—	264	—	—	278
Ceylon	—	—	47	75	—	—	138	166	—	588
China	...	...	...	...	—	1) 351	1) 110	—	—	707
Chosen	...	...	...	...	1) 17	—	—	1) 17	21	—
Taiwan	...	...	...	...	—	—	2) 0	2) 0	—	7
India: by sea 7)	926	1,236	—	—	3,463	2,367	—	—	11,096	—
» : by land 7)	...	...	...	...	...	...	...	...	—	—
Netherlands Indies:										
Java and Madura	...	...	...	...	—	—	1) 230	1) 209	—	1,321
Outer Provinces	...	...	...	...	—	—	1) 129	1) 136	—	867
Indo-China	...	...	...	...	—	—	2) 54	2) 62	—	563
Iraq	136	240	—	—	359	431	—	—	3,101	—
Iran	...	...	...	...	2) 189	2) 75	—	—	536	—
Japan	...	...	...	...	...	...	...	...	—	4) 2,278
British Malaya	...	...	...	...	—	—	1) 295	1) 297	—	1,808
Manchukuo	...	...	...	...	—	—	2) 366	2) 1,117	—	2,738
Palestine: Br. m. t.	...	...	...	...	—	—	1) 119	1) 195	—	2,056
Syria & Leb.: Fr. m.t.	...	...	...	...	—	1) 157	1) 18	—	824	—
Turkey	...	...	...	...	1) 433	1) 128	—	—	2,814	—
Algeria	616	663	—	—	1,463	1,732	—	—	3,572	—
Egypt	...	...	...	...	1) 4	—	—	1) 7	334	—
French Morocco	...	...	...	...	1) 135	1) 2	—	—	—	908
Tunis	403	12	—	—	963	—	—	27	—	366
Union of South. Afr.	...	...	...	...	2) 3	—	—	2) 2	565	—
Australia	3,302	2,193	—	—	8,793	9,551	—	—	58,928	—
New Zealand	...	...	...	...	...	...	...	...	—	330
Totals	**20,791**	**29,283**	**19,532**	**21 043**	**65,698**	**89,242**	**61,439**	**63,348**	**361,298**	**317,060**

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*) Excess of exports over imports — **) Excess of imports over exports

†) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333.333 centals of grain.

1) Up to 30 September. — 2) Up to 31 August. — 3) Up to 30 June — 4) Up to 31 May — 5) Wheat only. — 6) From 1st April 1937. — 7) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

COUNTRIES	October				Three months (August 1 October 31)				Twelve months (August 1 July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936 37
Exporting Countries	**Rye.** — Thousand centals (1 cental = 100 lb)									
Germany	0	0	296	10	0	1	700	25	1	3 232
Bulgaria	13	29	0	0	13	34	0	0	254	0
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	49	118	174	0	49	135	174	172	405
Hungary	43	92	0	0	423	573	0	0	2 816	0
Latvia	0	65	0	0	0	561	0	0	623	205
Lithuania	0	11	0	0	0	47	0	0	47	0
Poland Danzig	0	631	0	0	45	2 045	0	0	4 790	0
Romania					1) 2 065	1) 190	1) 0	1) 0	2 684	0
Sweden	0	0	2	15	1	4	2	24	4	166
Yugoslavia	15	5	0	0	62	24	0	0	92	0
U S S R	.				1) 846	1) 553	1) 0	1) 0	1 552	0
Canada	30	200	8	0	182	800	12	1	2 034	3
Argentina	2	513	—	—	31	1 034	—	—	3 394	—
Algeria	2	1	0	0	9	16	0	0	26	0
Importing Countries										
Austria	2	2	607	245	4	4	1 379	902	17	3 852
Belgo Luxemb E U	0	0	266	101	0	6	470	641	39	1 126
Denmark	0	0	338	692	0	0	839	1 598	0	3 809
Finland	0	0	38	60	0	0	93	98	1	1 418
France	0	0	7	4	0	0	9	19	0	27
Greece	0	0	0	0	0	0	0	0	0	1
Italy	0	0	0	9	0	0	0	41	0	141
Norway	0	0	247	275	0	0	441	767	0	2 933
Netherlands	283	265	228	55	617	440	375	314	2 028	1 237
United Kingdom					) 0	2) 0	1) 6	1) 27	1	140
Switzerland	0	0	20	11	0	0	27	29	0	604
Czechoslovakia	0	0	284	2	1	1	351	4	3	15
United States	422	0	0	444	1 403	0	0	1 421	303	2 045
Palestine Br m t	—	—		.	—	—	1) 24	1) 14	—	120
French Morocco	..	.			1) 0	1) 0	1) 0	1) 0	0	0
Totals	**812**	**1,863**	**2,459**	**2,097**	**5,704**	**6,382**	**4,863**	**6,099**	**20,881**	**21,479**

1) Up to 30 September — 2) Up to 31 August.

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:	**Barley.** — Thousand centals (1 centals = 100 lb).									
Bulgaria	53	83	0	0	242	145	0	0	606	0
Denmark	671	417	11	91	1,209	624	15	93	1,700	1,431
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	7	36	0	0	95	108	0	0	638	0
Latvia	0	0	0	0	0	0	2	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	18
Poland - Dantzig	616	1,035	0	0	819	2,681	0	0	6,342	0
Romania	...	...	...	...	1) 2,056	1) 4,639	1) 0	1) 0	13,765	0
Sweden	0	0	0	0	0	0	0	0	2	12
Czechoslovakia	0	383	0	0	0	655	1	1	1,163	2
Yugoslavia	20	4	0	0	72	6	0	0	192	1
U. S. S. R.	...	...	...	...	1) 2,946	1) 186	1) 0	1) 0	480	0
Canada	906	1,971	0	0	2 053	4,194	0	0	8,427	0
United States	833	218	32	669	3,256	1,473	356	2,150	2,332	8,145
Argentina	43	454	—	—	164	944	—	—	7,032	—
Chile	..	...	—	—	2) 10	2) 122	—	—	2) 1,515	—
India, by sea 4)	22	1	8	2	161	7	25	7	637	37
Iran	395	638	0	0	1,426	1,733	0	0	6,969	0
Iraq	..	...	...	..	2) 49	2) 30	2) 0	2) 0	2) 490	0
Manchukuo	...	...	—	—	2) 0	2) 7	—	—	24	—
Syria & Leb., Fr m t.	.	...	...	..	1) 11	1) 436	1) 7	1) 0	1,177	26
Turkey	...	..	—	—	1) 401	1) 93	—	—	1,472	—
Algeria	46	338	6	122	117	840	7	403	1 395	595
Egypt	...	...	...	...	1) 74	1) 65	1) 0	1) 3	622	3
French Morocco	...	...	..	...	1) 0	1) 2,200	1) 0	1) 0	4,251	0
Union of South Afr	...	...	. .	...	2) 0	2) 0	2) 0	2) 0	0	0
Australia	1	23	0	0	43	115	0	0	1,254	0
Importing Countries:										
Germany	0	0	573	2	0	0	1,213	34	0	3,207
Austria	0	0	117	86	0	0	225	320	2	927
Belgo-Luxemb E U.	47	22	1,701	1,563	87	95	3 597	3 598	759	10,567
Estonia	0	0	0	0	0	0	0	3	0	56
Finland	0	0	0	3	0	0	0	4	0	34
France	0	0	280	938	2	0	479	2,561	6	5,801
Greece	0	0	0	9	0	0	0	21	0	178
Irish Free State	5	0	2	0	5	0	122	0	1	545
Italy	0	0	65	105	2	0	109	268	0	745
Norway	0	0	78	40	0	0	138	161	0	618
Netherlands	185	133	1,081	551	390	265	1,835	1,251	468	4,641
United Kingdom	...	...	2,350	3,246	1) 1	1) 7	6,796	7,665	113	19,926
Switzerland	0	0	376	281	0	0	686	503	0	2,983
Burma 5)	—	—	0	—	—	—	1	—	—	2
Ceylon	—	—	0	1	—	—	1	2	—	11
Chosen	...	...	. .	...	1) 19	1) 3	1) 0	1) 0	13	13
Indo-China	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	1
Japan	.	..	...	...	...	...	...	...	—	3) 299
Palestine: Br m t	...	. .	...	...	1) 57	1) 0	1) 4	1) 161	109	638
Tunis	60	0	2	222	422	0	6	648	206	842
New Zealand	...	...	...	...	...	...	...	...	0	164
Totals	**3,910**	**5,756**	**6,682**	**7,931**	**16,189**	**21,673**	**15,625**	**19,856**	**64,162**	**62,468**

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1) Up to 30 September — 2) Up to 31 August — 3) Up to 31 May. — 4) From 1st April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries — 5) From 1st April 1937.

Oats. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	October				Three months (August 1-October 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:										
Bulgaria	0	2	0	0	0	4	0	0	73	0
Hungary	0	6	0	0	0	67	0	0	169	0
Lithuania	0	0	0	0	0	0	0	0	0	47
Poland-Dantzig	0	178	0	0	0	480	0	0	1,476	0
Romania	...	...	...	...	1) 2	1) 126	1) 0	1) 0	670	0
Czechoslovakia	7	96	0	0	51	140	0	0	919	0
Yugoslavia	6	0	0	0	51	0	0	0	81	0
U. S. S. R.	...	...	...	...	1) 5	1) 4	1) 0	1) 0	139	5
Canada	50	276	604	0	264	777	1,020	0	2,285	3
United States	877	2	0	7	1,373	4	0	11	29	50
Argentina	494	387	—	—	872	809	—	—	8,436	—
Chile	...	...	...	...	2) 8	2) 64	2) 0	2) 0	1,481	0
Chosen	..	..	...	...	1) 1	1) 29	1) 0	1) 0	44	1
India (by sea 4)	1	0	—	—	6	1	—	—	9	—
French Morocco	..	..	..	...	1) 83	1) 112	1) 0	1) 0	210	0
Tunis	41	1	0	3	147	2	0	3	55	7
Union of South Afr.	..	...	...	..	2) 5	2) 1	2) 0	2) 0	90	0
Australia	4	23		0	14	33	1	3	121	13
New Zealand	...	...	...	..	.	...	..	...	2	18
Importing Countries:										
Germany	0	0	67	0	0	0	197	6	1	1,118
Austria	0	0	27	21	0	0	127	151	1	848
Belgo-Luxemb. E. U.	0	0	7	28	0	0	118	74	4	1 011
Denmark	40	0	22	84	87	1	64	86	189	1,480
Estonia	0	0	0	0	0	0	0	0	0	129
Finland	0	0	3	1	0	0	47	33	0	125
France	1	0	114	252	2	1	271	564	6	2,393
Greece	0	0	22	1	0	0	22	4	0	93
Irish Free State	0	0	0	0	0	0	0	0	0	0
Italy	19	0	44	55	19	0	97	199	1	627
Latvia	0	0	0	0	0	0	0	0	0	11
Norway	0	0	0	0	0	0	0	0	1	132
Netherlands	57	90	42	6	79	108	248	70	1,138	709
United Kingdom			34	180	1) 3	1) 4	112	629	37	2,085
Sweden	0	0	31	0	0	0	128	22	55	634
Switzerland	0	0	323	334	0	0	892	918	0	4,562
Uruguay	...	...	..	...	2) 0	2) 0	2) 0	2) 0	0	10
Ceylon	—	—	1	2	—	—	4	4	—	14
Indo-China	...	...		..	2) 0	2) 0	2) 1	2) 0	0	0
Japan	...	...	..	...	..	..	...	...	—	3) 51
Syria and Lebanon: Fr. m. t.	...	...	.	...	1) 7	1) 0	1) 0	1) 0	5	1
Algeria	3	147	33	0	4	534	181	19	811	41
Egypt	—	—	...	...	—	—	1) 0	1) 0	—	1
Totals	**1,600**	**1,208**	**1,374**	**974**	**3,083**	**3,301**	**3,630**	**2,796**	**18,538**	**16,219**

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1) Up to 30 September. — 2) Up to 31 August — 3) Up to 31 May. — 4) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	OCTOBER				TWELVE MONTHS (Nov. 1-Oct. 31)				TWELVE MONTHS (Nov. 1-Oct 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries.										
Bulgaria	41	74	0	0	2,515	1,896	0	0	—	—
Hungary	208	8	0	76	2,648	40	10	7,305	—	—
Romania	...	...	...	...	1) 15,301	1) 17,908	1) 0	1) 0	—	—
Yugoslavia	964	71	0	0	13 313	1,445	2	0	—	—
U. S. S. R.	...	...	...	...	1) 0	1) 12	1) 1	1) 0	—	—
Haiti	0	0	—	—	3	3	—	—	—	—
Santo Domingo	16	57	—	—	330	307	—	—	—	—
Argentina	17,401	20,893	—	—	219,513	172,254	—	—	—	—
Brazil	...	...	—	—	2) 42	2) 75	—	—	—	—
Chile	...	...	...	...	2) 0	2) 0	2) 0	2) 0	—	—
China	...	...	—	—	1) 294	1) 126	—	—	—	—
India by sea 5)	0	0	—	—	2	2	—	—	—	—
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 3,602	1) 2,370	—	—	-	—
Outer Provinces	...	...	—	—	1) 1,522	1) 703	—	—	—	—
Indo-China	...	...	—	—	1) 9,400	1) 8,750	—	—	—	—
Iraq	0	0	—	—	6	6	—	—	—	—
Manchukuo	...	..	—	—	2) 2,239	2) 1,571	—	—	—	—
Syria and Lebanon: Fr m. t.	...	...	..	..	1) 4	1) 78	1 1	1) 2	—	—
Turkey	...	..	...	...	1) 4	1) 0	1) 0	1) 133	—	—
Egypt	...	..	...	...	1) 52	1) 1	1) 0	1) 9	—	—
Madagascar	...	...	...	.	2) 518	2) 328	2) 0	2) 0	—	—
French Morocco	...	...	..	..	1) 390	1) 1,133	1) 0	1) 0	—	—
Union of South Afr	...	...	...	...	1) 9,895	1) 1,446	2) 1	2) 4	—	-
Importing Countries:										
Germany	0	0	6,835	54	0	0	33,683	4,174	—	—
Austria	0	0	662	360	1	0	7,540	7,024	—	—
Belgo - Luxemburg Econ. Union	0	32	2,283	1,947	422	507	21,290	19,404	—	—
Denmark	0	0	767	835	0	0	14,851	4,521	—	—
Spain	—	—	—	--	—	—	—	—	—	—
Estonia	0	0	0	0	0	0	252	0	—	—
Finland	0	0	140	65	0	0	1,582	2,031	—	—
France	0	0	1,168	2,280	14	3	15,248	15,328	—	—
Greece	0	0	3	31	0	0	1,110	1,519	—	—
Irish Free State	0	0	359	611	0	0	6,684	4,806	—	—
Italy	0	0	95	53	0	0	2,877	4.002	—	—
Latvia	0	0	0	0	0	0	118	0	—	- -
Norway	0	0	189	261	0	0	3,257	2,759	—	—
Netherlands	0	0	2,576	1,594	2	2	21,471	19,688	—	—
Poland-Dantzig	0	0	5	0	0	0	179	0	—	—
Portugal	0	0	37	39	0	2	450	388	—	—
United Kingdom	183	113	7,225	8,772	2,581	1,479	81,489	79,085	—	—
Sweden	0	0	204	121	0	0	4,042	1,422	—	—
Switzerland	0	0	128	175	0	0	2,548	1,742	—	—
Czechoslovakia	0	0	118	50	18	0	1,475	2,345	—	—
Canada	0	11	1,828	2,260	218	62	13,620	4,723	—	—
United States	88	13	661	4,549	152	295	54,153	13,732	—	—
Peru	...	...	...	...	3) 0	3) 0	3) 3	3) 33	—	—
Chosen	...	...	...	...	1) 19	1) 1	1) 257	1) 598	—	—
Japan	—	—	...	...	—	—	4) 4,410	4) 3,708	—	—
Palestine: Brit m t.	...	...	...	...	1) 109	1) 39	1) 360	1) 118	—	—
Algeria	0	10	13	41	66	30	75	94	—	—
Tunis	0	0	4	79	0	5	223	142	—	—
Australia	0	0	0	0	0	1	4	21	—	—
New Zealand	...	...	...	...	3) 0	3) 0	3) 140	3) 53	—	—
Totals	**18,901**	**21,282**	**25,300**	**24,253**	**285,195**	**212,880**	**293,406**	**200,913**	—	—

1) Up to 30 September. — 2) Up to 31 August. — 3) Up to 31 July. — 4) Up to 31 May — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Rice. — Thousand centals (1 cental = 100 lb.)

COUNTRIES	OCTOBER EXPORTS 1937	OCTOBER EXPORTS 1936	OCTOBER IMPORTS 1937	OCTOBER IMPORTS 1936	TEN MONTHS (January 1-October 31) EXPORTS 1937	TEN MONTHS (January 1-October 31) EXPORTS 1936	TEN MONTHS (January 1-October 31) IMPORTS 1937	TEN MONTHS (January 1-October 31) IMPORTS 1936	TWELVE MONTHS (January 1-Dec. 31) EXPORTS 1936	TWELVE MONTHS (January 1-Dec. 31) IMPORTS 1936
Exporting Countries										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	85	251	2	4	2 451	2 156	16	24	3 147	28
United States	264	18	86	124	1 405	129	1 729	877	235	1 151
Brazil			—	—	) 469	) 1 028	—	—	1,176	—
Burma 6)	7) 2 857	—	2	—	8) 41 274	—	18	—	—	—
Chosen					1) 46	1) 102	1) 1	1) 2	153	3
Taiwan					) 1	0	) 0	) 0	1	0
India by sea 9)	377	2 560	10) 1 122	81	14 927	26 306	11) 17 598	3 182	29 931	3 236
" by land 9)					3) 348	3) 327	3) 1 231	3) 990	513	1 385
Indo China					1) 24 600	1) 29 664	2) 21	) 42	37 103	69
Iran	0	1	0	0	6	9	0	0	13	1
Iraq					) 842	) 721	) 1	) 0	1 251	0
Siam			—	—	1) 15 783	1) 27 427	—	—	35 249	—
Egypt					1) 2 709	1) 1 908	1) 2	1) 2	3 070	2
Importing Countries										
Germany	66	59	567	331	488	459	3 988	3 309	561	3 805
Austria	0	0	45	75	0	0	564	505	0	604
Belg.-Luxemb. E. U.	25	25	187	146	486	133	1 547	898	220	1 216
Denmark	0	0	4	4	0	0	120	181	0	182
Estonia	—	—	4	5	—	—	21	20	—	22
Finland	—	—	34	38	—	—	287	247	—	313
France	20	23	847	2 142	639	278	13 820	14 814	376	18 870
Greece	0	0	19	66	0	0	530	524	0	665
Hungary	0	0	0	38	0	0	290	310	0	349
Irish Free State	0	0	4	6	0	0	58	69	0	82
Latvia	0	0	2	1	0	0	19	11	0	17
Lithuania	0	0	2	2	0	0	9	9	0	9
Norway	0	0	4	4	0	0	109	89	0	101
Netherlands	227	232	294	564	2 581	1 857	4 696	3 559	2 437	4 414
Poland and Dantzig	11	21	5	251	81	181	1 036	1 054	211	1 207
Portugal	0	0	15	2	0	0	75	434	0	455
Rumania	—	—			—	—	1) [illegible]	1) 362		654
United Kingdom	8	21	174	138	143	160	2 330	2 010	202	2 490
Sweden	—	—	20	18	—	—	278	210	—	234
Switzerland	0	0	17	65	0	0	280	358	1	521
Czechoslovakia	0	0	151	74	0	0	1 030	309	0	1 138
Yugoslavia	0	0	58	38	3	0	357	320	0	492
U. S. S. R.					1) 16	1) 15	1) 758	1) 972	21	1 159
Canada	0	5	27	33	33	24	708	733	28	783
Haiti	—	—	2	4	—	—	26	38	—	44
Chile	—	—			—		) 274	271	—	356
Colombia	—	—			—	—	4) 73	4) 149	—	267
Peru					3) 0	3) 0	3) 174	3) 584	0	737
Ceylon	0	0	976	829	1	2	10 338	10 002	2	11 926
China					1) 471	1) 448	1) 5 564	1) 6 681	592	6 842
Netherlands Indies										
Java and Madura					1) 263	1) 159	1) 33	1) 158	263	190
Outer Provinces					1) 206	1) 164	1) 1 966	1) 5 784	246	4 915
Japan					5) 98	5) 67	5) 32	) 158	234	1 721
British Malaya					1) 1 929	1) 3 022	1) 17 128	1) 11 864	4 091	16 150
Manchukuo					2) 40	) 26	) 1 454	) 1 643	40	2 362
Palestine Br. m. t.					1) 93	1) 1	1) 367	1) 223	1	396
Syria & Leb. Fr. m. t.					1) 0	1) 0	1) 322	1) 251	0	412
Turkey	—	—				—	1) 0	1) 6		7
Algeria	0	2	42	57	56	5	734	268	11	422
Madagascar					) 56	) 36	2) 15	) 38	54	65
French Morocco	—	—			—		1) 465	1) 113	—	187
Tunis	0	0	55	14	0	0	434	58	0	114
Union of South Afr.					) 0	) 0	2) 988	) 864	0	1 266
Australia	31	42	1	23	455	226	75	67	267	72
New Zealand					3) 1	3) 0	3) 50	3) 52	0	71
Totals	7) **3,971**	**3,260**	10) **4,768**	**4,977**	8) **113,000**	**97,040**	11) **89,386**	**74,298**	**121,700**	**93,679**

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1) Up to 30 September. — 2) Up to 31 August. — 3) Up to 31 July. — 4) Up to 30 June. — 5) Up to 31 May. — 6) From 30 April. — 7) Including 1 128 thousand centals exported from Burma to India. — 8) Including 18 494 thousand centals exported from Burma to India from 1st April 1937. — 9) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. — 10) Including 1,121 thousand centals imported from Burma into India. — 11) Including 17 531 thousand centals imported from Burma into India from 1st April 1937.

Linseed. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	October				Ten months (January 1-October 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries										
Lithuania	108	73	0	0	280	319	0	0	525	0
Romania	...	...	...	...	1) 4	1) 17	1) 0	1) 0	39	0
Argentina	3,377	2,999	—	—	34,037	26,325	—	—	32,743	—
Uruguay	...	...	—	—	2) 1,215	2) 1,387	—	—	1,648	—
China	...	...	—	—	1) 264	1) 713	—	—	812	—
India: by sea 5)	525	649	0	0	4,319	5,825	0	0	6,909	0
» by land 5)	—	—	...	...	—	—	3) 177	3) 216	—	308
Iraq	10	0	—	—	49	23	—	—	24	—
French Morocco	...	...	—	—	1) 162	1) 147	—	—	211	—
Tunis	0	0	0	0	2	0	1	0	0	0
New Zealand	...	...	...	...	3) 4	3) 2	3) 0	3) 0	9	0
Importing Countries										
Germany	0	0	330	516	0	0	3,457	4,137	0	4,824
Austria	0	0	1	1	0	2	8	10	2	13
Belgo Luxemb E U.	6	6	91	130	69	107	1,956	1,898	124	2,419
Denmark	—	—	36	63	—	—	428	406	—	449
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	2	0	0	0	10	2	0	20	3	20
Finland	0	0	13	4	0	0	125	114	0	136
France	0	0	464	468	7	3	5,455	5,495	4	6 179
Greece	0	0	13	16	0	0	97	57	0	71
Hungary	0	0	0	0	1	0	19	4	0	4
Irish Free State	0	0	8	10	0	0	90	98	0	120
Italy	0	0	109	125	0	0	1,430	952	0	1,194
Latvia	2	0	9	2	45	26	21	37	47	59
Norway	0	0	0	15	0	0	458	413	0	473
Netherlands	6	6	680	274	108	87	5,811	5,763	101	7,287
Poland-Dantzig	0	0	0	0	0	78	0	0	78	0
United Kingdom	0	0	752	490	0	1	5,419	5,260	1	6,088
Sweden	—	—	152	58	—	—	1,006	683	—	808
Czechoslovakia	0	0	66	41	0	0	541	398	0	536
Yugoslavia	0	0	26	4	0	0	180	64	0	95
Canada	0	46	103	31	3	75	627	575	101	726
United States	—	—	956	978	—	—	13,769	6,255	—	8,604
Burma 6)	0	—	0	—	0	—	0	—	—	—
Japan	...	...	...	...	4) 0	4) 0	4) 98	4) 110	0	284
Palestine Br m t.	—	—	...	...	—	—	1) 19	1) 24	—	27
Algeria	0	0	0	0	0	2	29	1	3	2
Egypt	...	...	...	...	1) 10	1) 2	1) 0	1) 3	4	7
Australia	0	0	111	115	0	0	755	490	0	515
Totals	**4,036**	**3,779**	**3,920**	**3,341**	**40,589**	**35,143**	**41,976**	**33,483**	**43,388**	**41,248**

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1) Up to 30 September — 2) Up to 31 August — 3) Up to 31 July — 4) Up to 31 May — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries — 6) From 1st April 1937

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries	**Cotton.** — Thousand centals (1 cental = 100 lb.).									
United States . . .	4,290	4,502	44	50	8,784	8,443	111	159	28,443	1,265
Haiti	7	1	—	—	9	5	—	—	121	—
Santo Domingo .	0	0	—	—	0	0	—	—	2	—
Argentina	15	83	—	—	70	381	—	—	675	—
Brazil	...	...	—	—	2) 560	2) 669	—	—	4,408	—
Peru . . .	...	...	—	—	...	...	—	—	1,751	—
Burma 6)	38	—	0	—	47	—	0	—	91	0
India by sea 7)	239	549	160	67	1,260	1,868	368	183	17,250	1,979
» . by land 7)	...	...	—	—	...	..	—	—	3) 7	—
Netherlands Indies: Java and Madura	...	...	—	—	1) 0	1) 0	—	—	28	—
Iraq . .	12	4	0	0	20	4	1	1	40	3
Iran . .	...	...	...	...	2) 28	2) 2	2) 0	2) 0	371	0
Syria and Lebanon: Fr m t . . .	...	...	...	..	1) 1	1) 2	1) 0	1) 0	81	0
Turkey	...	..	—	—	1) 39	1) 26	—	—	321	—
Egypt	...	...	—	—	1) 845	1) 669	—	—	8,738	—
French Morocco	...	...	..	..	1) 0	1) 0	1) 0	1) 0	1	1
Union of South Afr.	...	...	...	...	2) 2	2) 1	2) 0	2) 1	11	12
Importing Countries										
Germany	0	0	704	467	0	1	1,692	1,291	2	5,779
Austria	0	0	79	81	0	0	215	181	1	871
Belgo-Luxemb E U.	71	61	175	190	203	163	468	487	757	2,938
Bulgaria .	0	0	24	15	0	0	62	43	0	193
Denmark	—	—	16	18	—	—	47	44	—	204
Spain	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	14	11	0	0	40	31	0	132
Finland	0	0	29	27	0	1	70	62	1	299
France	30	29	611	643	84	92	1,199	1,146	411	6,955
Greece	0	0	4	9	0	0	15	18	0	65
Hungary . .	0	0	38	48	0	0	99	133	0	552
Italy . . .	0	0	271	92	0	0	805	1,144	0	3.598
Latvia	0	0	9	9	0	0	21	22	0	115
Lithuania	0	0	4	4	0	0	14	9	0	43
Norway	0	0	13	6	0	0	21	10	0	75
Netherlands . . .	1	1	108	105	2	5	232	257	16	1,360
Poland - Dantzig . .	0	0	147	139	0	0	448	410	2	1,636
Portugal	—	—	40	20	—	—	93	67	—	555
Romania	...	...	..	...	1) 0	1) 0	1) 47	1) 32	0	316
United Kingdom . .	45	47	1,683	1,438	154	177	3,334	3,558	609	15,885
Sweden . .	—	—	34	61	—	—	111	128	—	754
Switzerland . . .	0	0	70	53	2	0	133	104	5	715
Czechoslovakia .	6	5	180	184	14	19	499	476	53	2 516
Yugoslavia . . .	0	0	51	35	1	0	121	75	2	410
U S S R . . .	...	...	...	..	1) 211	1) 0	1) 52	1) 10	508	443
Canada	—	—	192	166	—	—	309	331	—	1,680
Chile	—	—	...	...	—	—	...	...	—	5) 43
Colombia	—	—	..	...	—	—	...	...	—	3) 61
Ceylon	0	0	2	2	0	0	4	3	0	20
China	...	...	...	...	1) 34	1) 49	1) 34	1) 98	1,213	504
Chosen	...	...	..	...	1) 0	1) 0	1) 3	1) 3	0	31
Taiwan	—	—	...	...	—	—	2) 0	2) 0	—	7
Indo China .	...	...	...	...	2) 1	2) 1	2) 10	2) 36	19	253
Japan	...	...	...	...	..	.	.	. .	4) 598	4) 19,031
Manchukuo . .	...	...	...	...	2) 0	2) 0	2) 47	2) 37	3	735
Palestine: Br m t .	...	...	...	..	1) 0	1) 0	1) 2	1) 1	0	12
Algeria	0	0	0	0	0	0	1	1	2	5
Australia	0	0	10	5	0	0	39	14	0	52
Totals . . .	**4,754**	**5,282**	**4,712**	**3,945**	**12,371**	**12,578**	**10,767**	**10,606**	**66,541**	**72,102**

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1) Up to 30 September. — 2) Up to 31 August. — 3) Up to 30 June — 4) Up to 31 May — 5) Up to 30 April — 6) From 1st April 1937 — 7) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries

Wool. — Thousand lb.

COUNTRIES	October				Two months (Sept. 1-October 31)				Twelve months (Sept. 1-Aug. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Hungary	148	141	53	53	148	251	77	73	1,118	1,133
Irish Free State	613	2,044	55	79	1,799	3,794	130	137	16,535	853
Argentina a)	4,731	5,307	—	—	11,063	12,979	—	—	253,323	—
b)	2,540	2,295	—	—	5,485	5,086	—	—	44,586	—
Chile	...	...	...	...	...	...	...	...	29,247	564
Peru	...	...	—	—	...	.	—	—	2) 12,615	—
Uruguay a)	...	...	...	...	...	...	...	...	130,175	0
b)	...	...	...	...	...	...	...	...	12,734	0
Burma 4)	35	—	0	—	51	—	0	—	97	2
China	...	...	—	—	1) 1,565	1) 3,549	—	—	36,138	—
India: by sea 5)	3,525	5,408	421	582	10,227	13,096	789	1,032	69,018	6,799
» : by land 5)	—	—	...	...	—	—	...	...	—	2) 20,995
Iraq	895	1,464	2	22	2,317	2,584	13	22	18,351	170
Iran	...	...	...	...	.	...	...	...	12,681	0
Manchukuo	...	...	...	...	...	.	...	...	6,746	1 777
Palestine: Br. m. t.	...	...	...	...	1) 55	1) 11	1) 13	1) 0	520	399
Syria & Leb.: Fr. m. t.	...	...	...	...	1) 1,960	1) 985	1) 22	1) 42	8,697	955
Algeria	1,508	1,874	185	227	3,093	3,585	324	306	28,934	3,303
Egypt	...	...	...	...	1) 807	1) 769	1) 9	1) 0	6,019	60
French Morocco	...	...	...	...	1) 1,184	1) 386	1) 2	1) 2	17,712	66
Tunis	511	379	157	46	866	494	324	79	8,625	1,091
Un. of S. Africa a)	...	...	...	...	1) 3,391	1) 3,922	..	...	248,252	203
b)	...	...	...	...	1) 161	1) 448	..	..	8,997	1,984
Australia a)	70,698	91,829	68	278	122,851	144,035	353	304	775,794	3,730
b)	...	...	...	...	1) 4,601	1) 3,633	1) 2	1) 2	67,865	104
New Zealand a)	1,786	2,967	...	...	3,569	6,867		. .	236,945	2) 99
b)	1,237	2,211	...	...	3,556	6,175	..	.	55,085	2) 4
Importing Countries:										
Germany a)	0	2	11,748	7,106	0	9	20,554	14,537	284	174,664
b)	77	18	3,763	4,597	88	24	6,008	8,397	212	37,906
Austria	29	2	472	763	40	20	783	1 349	161	19,789
Belgo-Luxemb. Econ. Un. a)	4,484	5,459	10,532	11,312	8,882	8,356	16,321	18,678	98,053	276,778
b)	2,335	2 908	450	514	4,473	4 941	1,025	1,625	27,384	7,255
Bulgaria	0	0	62	194	0	0	86	203	0	1,468
Denmark	18	71	384	454	40	161	922	1,323	498	5,661
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	71	97	0	0	134	212	0	745
Finland	13	35	492	730	33	35	913	1,248	273	6,830
France	4,890	5,359	14,326	9,581	9,002	12,211	33 078	18,792	77 398	317,295
Greece	183	194	869	818	505	434	1,292	1,107	2,388	7,467
Italy a)	22	0	5,684	3,408	37	0	11,272	7,379	115	78,917
b)	73	0	335	381	128	0	827	919	1,380	6,504
Latvia	0	0	205	126	0	0	368	386	0	1,834
Lithuania	0	2	134	95	0	2	256	161	20	906
Norway	137	163	209	240	351	276	414	492	1,779	2,833
Netherlands a)	346	353	370	439	606	919	531	1,008	5,280	5,959
b)	40	82	432	613	112	190	897	919	977	6,909
Poland - Dantzig	42	2	1 543	4,561	64	18	3,790	10,024	287	50,027
Portugal	26	44	13	35	425	227	179	68	3,217	3,294
Romania	...	...	...	...	1) 20	1) 88	1) 328	1) 33	1,089	1,856
United Kingdom	15,986	24,961	50,695	51,176	23,182	39,156	80,187	85,458	301,179	841,794
Sweden	—	—	1,288	2,242	—	-	3,280	4,385	—	21,945
Switzerland	11	4	489	1,016	46	33	814	2,169	291	16,700
Czechoslovakia	165	13	858	2,800	223	35	1,790	5 159	551	41,967
Yugoslavia	148	22	456	981	939	216	891	1,579	1,334	8,303
U. S. S. R. a)	...	...	...	...	1) 0	1) 0	1) 3,880	1) 3,195	0	50,312
b)	...	...	...	...	1) 0	1) 0	1) 1,023	1) 2,974	0	15,939
Canada	403	796	1,523	1,151	833	1,660	2,460	2,291	7,774	26,048
United States	20	4	14,213	23,550	37	4	31,110	43,189	31	376,833
Japan	...	...	...	...	...	...	...	...	3) 271	3) 215,223
Totals	**117,675**	**156,413**	**122,557**	**130,267**	**228,815**	**281,664**	**227,471**	**241,294**	**2,639,036**	**2,674,252**

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a) = Wool, greasy. — b) Wool, scoured. — 1) Up to 30 September — 2) Up to 31 July. — 3) Up to 31 May. — 4) From 1st April 1937. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

COUNTRIES	OCTOBER				TEN MONTHS (January 1-October 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
	Butter. — Thousand lb.									
Exporting Countries:										
Austria	957	1,149	0	0	6,345	6,462	9	11	7,802	13
Bulgaria	2	22	0	0	24	64	0	0	73	0
Denmark	25,783	28,570	—	—	283,875	272,741	—	—	322,328	—
Estonia	3,188	1,433	0	0	24,888	19,954	0	0	24,152	0
Finland	1,894	2,617	0	0	27,291	25,730	0	0	30,836	0
Hungary	1,411	1,429	0	0	11,486	8,356	0	0	10,401	0
Irish Free State	4,028	6,473	0	0	40,759	53,868	1,459	9	58,032	11
Latvia	5,576	4,348	0	0	36,409	33,409	0	0	38,118	0
Lithuania	3,413	4,021	0	0	29,284	28,451	0	0	32,252	0
Norway	0	0	0	0	362	366	0	0	423	0
Netherlands	9,559	10,933	7	15	104,903	115,882	26	55	132,686	71
Poland-Dantzig	1,991	3,252	0	0	14,123	21,971	0	0	24,046	0
Romania	...	...	...	...	1) 148	1) 201	1) 0	1) 0	218	0
Sweden	4,835	4 226	0	0	45,217	35,239	2	412	42,126	414
Yugoslavia	4	7	—	—	220	249	—	—	269	—
U. S. S. R.	...	...	...	...	1) 28,587	1) 30,750	1) 51	1) 311	51,097	476
Argentina	542	553	—	—	14,586	15,408	—	—	22,642	—
Chile	...	...	...	...	2) 9	2) 20	2) 0	2) 0	31	0
Syria & Leb.: Fr. m. t.	...	...	...	...	1) 194	1) 445	1) 132	1) 130	750	161
Turkey	...	...	—	—	1) 7	1) 20	—	—	33	—
Union of South Afr.	...	...	...	...	2) 7,112	2) 7,624	2) 0	2) 0	9,273	0
Australia	17,525	16,107	0	0	130,119	145 272	0	4	185,672	4
New Zealand	19,634	15,353	—	—	268,952	240,607	—	—	313,168	—
Importing Countries:										
Germany	0	0	20,527	24,079	0	0	156,368	138,484	0	166,245
Belgo Luxemb. E. U.	2	4	276	42	33	57	3,635	7,381	68	8,139
Spain	—	—	—	—	—	—	—	—	—	—
France	503	1,241	121	141	5,710	11,034	1,312	4,057	12,679	4,251
Greece	—	—	51	68	—	—	580	668	—	780
Italy	22	134	141	185	1,358	1,021	4,945	730	1,221	864
Portugal	9	0	0	4	68	0	26	218	0	340
United Kingdom	1,296	983	79,084	87,074	10,474	8,056	883,089	921,244	9,237	1,095,624
Switzerland	0	0	9	77	4	4	5,053	1,594	7	3,223
Czechoslovakia	187	44	0	11	1,027	49	1,676	496	379	496
Canada	1,724	60	2	0	2,097	5,007	60	110	5,130	119
United States	62	60	216	648	686	721	10,364	7,357	825	9,872
Peru	...	...	...	...	3) 0	3) 18	3) 75	3) 234	26	465
Burma 5)	0	—	53	—	0	—	403	—	—	—
Ceylon	—	—	75	57	—	—	613	628	—	805
China	—	—	...	...	—	—	1) 761	1) 743	—	939
India: by sea 6)	73	9	53	75	340	174	705	772	218	944
» : by land 6)	—	—	...	...	—	—	3) 4,222	3) 3,631	—	5,022
Netherlands Indies:										
Java and Madura	—	—	...	...	—	—	1) 5,893	1) 6,892	—	9,196
Outer Provinces	—	—	...	...	—	—	1) 2,156	1) 2,321	—	3,078
Indo-China	...	...	...	...	2) 2	2) 2	531	412	4	917
Iraq	0	0	2	2	9	9	20	9	2	13
Iran	...	...	...	...	2) 0	2) 0	2) 0	2) 7	2	11
Japan	...	...	...	...	4) 13	4) 586	4) 1,164	4) 7	924	13
British Malaya	...	...	...	...	1) 450	1) 467	1) 3,296	1) 3,157	631	4,105
Manchukuo	—	—	...	...	—	—	2) 148	2) 115	—	190
Palestine: Br. m. t.	—	—	...	...	—	—	1) 4,061	2) 4,008	—	5,494
Algeria	11	0	368	450	15	7	3,472	3,439	9	4,394
Egypt	...	...	...	...	1) 11	1) 37	1) 917	1) 959	42	1,316
French Morocco	—	—	...	...	—	—	1) 2,090	1) 3,247	—	4,017
Tunis	0	0	192	243	2	4	1,457	1,642	4	2,026
Totals	**104,231**	**103,028**	**101,177**	**113,171**	**1,097,199**	**1,090,342**	**1,100,771**	**1,115,494**	**1,337,836**	**1,334,048**

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1) Up to 30 September. — 2) Up to 31 August. — 3) Up to 31 July — 4) Up to 31 May. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cheese. — Thousand lb.

COUNTRIES	October				Ten months (January 1-October 31)				Twelve months (Jan 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936	1936
Exporting Countries:										
Austria	922	752	143	121	7,212	6,700	1,735	1,618	8,620	1,878
Bulgaria	258	694	0	0	2,571	3,624	0	0	4,206	0
Denmark	2,112	1,936	2	2	17,344	17,970	22	18	21,008	22
Estonia	29	42	0	0	425	161	2	0	198	6
Finland	1,900	1,087	7	2	12,271	9,039	26	15	10,864	20
Italy	8,047	7,650	1,023	273	44,073	31,800	7,491	7,046	42,840	8,453
Latvia	24	11	0	0	179	75	0	0	119	0
Lithuania	11	95	0	0	531	739	2	2	972	2
Norway	265	298	60	29	3,327	2,793	322	190	3,404	269
Netherlands	13,287	11,413	86	73	115,362	103,223	650	712	125,311	869
Poland-Dantzig	9	284	24	22	1,296	397	192	183	441	223
Romania	...	...	...	...	1) 44	1) 29	1) 35	1) 22	126	55
Switzerland	3,666	2,597	282	280	32 185	35,140	2,848	2,540	40,737	3,505
Czechoslovakia	549	57	192	185	1,552	1,111	2,183	2,253	1,554	2,555
Yugoslavia	470	1,195	7	9	3,444	3,845	42	33	4,676	53
Canada	15,629	15 803	106	150	71 417	60,581	1,063	869	81,891	1,241
Australia	472	278	—	—	2,606	2,326	—	—	2,818	—
Turkey	...	...	—	—	1) 24	1) 66	—	—	90	—
Union of South Afr	..	..	...	..	2) 1,579	2) 1,224	2) 185	2) 137	1,369	238
Australia	2,308	1 634	7	15	11,965	7,868	97	75	12,454	99
New Zealand	7,593	11,310	...	...	148 405	144 965	3) 2	3) 0	185,722	0
Importing Countries:										
Germany	11	9	9,039	4,702	146	214	66,668	51,577	262	61,507
Belgo-Luxemb. E. U.	35	35	4 337	4,795	313	300	41,954	42,589	366	50,832
Spain	—	—	—	—	—	—	—	—	—	—
France	2,147	2,019	3 049	2,747	20 331	18,953	24,560	26 405	23,345	32,516
Greece	159	110	24	15	769	483	604	306	705	370
Hungary	24	37	0	0	756	564	0	0	767	2
Irish Free State	377	326	2	4	1,435	1,486	35	77	1,814	88
Portugal	13	7	24	24	119	97	179	236	121	346
United Kingdom	668	573	31,460	28,120	4,912	5,038	272,413	242,062	6,023	300,628
Sweden	—	—	249	291	—	—	1,759	2 628	—	3,530
U. S S R	. .	...	. .	..	1) 31	1) 42	1) 487	1) 494	90	756
United States	79	93	7 535	5,675	977	955	49,712	47,739	1,135	59 851
Chile	...	..	...	. .	2) 11	2) 13	2) 51	2) 35	26	44
Peru	—	—	...	. .	—	—	3) 467	3) 364	—	648
Burma 5)	0	—	7	—	0	—	55	—	—	—
Ceylon	—	—	20	26	—	—	170	159	—	220
India: by sea 6)	0	0	104	165	46	2	1,025	919	2	1,184
Netherlands Indies: Java and Madura	—	—	...	...	—	—	1) 1,356	1) 1,272	—	1,733
Indo-China	...	...	...	...	2) 2	2) 2	2) 448	2) 399	2	602
Iraq	0	0	15	13	13	7	42	40	7	62
Iran	...	...	. .	...	2) 0	2) 0	2) 0	2) 2	0	2
Japan	—	—	...	. .	—	—	4) 35	4) 40	—	168
British Malaya	...	...	...	...	1) 214	1) 11	1) 1,510	1) 243	18	337
Palestine: Br m. t.	...	...	...	...	1) 15	1) 55	1) 1,711	1) 1,179	57	1,845
Syria & Leb : Fr. m. t.		.	...	..	1) 406	1) 278	1) 575	1) 1708	470	957
Algeria	2	4	1,005	1,058	44	62	9,407	9,162	84	11,025
Egypt	...	...	..	. .	1) 40	1) 24	1) 5 298	1) 5 315	44	7,771
French Morocco	—	—	...	...	—	—	1) 2,643	1) 2 659	—	3,673
Tunis	7	4	291	304	46	99	2,244	2,321	104	2,915
Totals	**61,073**	**60,353**	**59,100**	**49,100**	**509,438**	**462,366**	**502,305**	**454,643**	**584,862**	**563,100**

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1) Up to 30 September. — 2) Up to 31 August — 3) Up to 31 July — 4) Up to 31 March. — 5) From 1st April 1937. — 6) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries.

Cacao. — Thousand lb.

COUNTRIES	October				Twelve months (October 1-September 30)				Twelve months (Oct. 1-Sept. 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1936-37	1935-36	1936-37	1935-36	1935-36	1935-36
Exporting Countries:										
Grenada	...	...	—	—	7,877	8,228	—	—	—	—
Haiti	736	163	—	—	3,166	3,618	—	—	—	—
Santo Domingo	1,010	11	—	—	42,128	40,259	—	—	—	—
Brazil	...	...	—	—	1) 204,149	1) 236,647	—	—	—	—
Equador	...	...	—	—	43,475	45,096	—	—	—	—
Trinidad	...	...	—	—	30,400	27,805	—	—	—	—
Venezuela	...	...	—	—	28,660	29,198	—	—	—	—
Ceylon	699	1,054	—	—	8,662	6,102	—	—	—	—
Netherlands Indies: Java and Madura	...	...	—	—	3,128	3,995	—	—	—	—
Cameroon: Fr. m. t.	...	...	—	—	61,476	52,927	—	—	—	—
Ivory Coast	1,914	3,338	—	—	113,565	108,812	—	—	—	—
Gold Coast	22,077	54,955	—	—	672,000	639,440	—	—	—	—
Madagascar	...	...	—	—	1) 503	1) 805	—	—	—	—
Nigeria and Cameroon Brit. m. t.	7,665	7,930	—	—	227,800	204,349	—	—	—	—
São Thomé and Principe Islands	1,537	2,251	—	—	18,162	31,775	—	—	—	—
Togo Fr. m. t.	...	...	—	—	18,559	21,182	—	—	—	—
Importing Countries:										
Germany	212	0	17,176	17,996	3,100	7	160,468	172,395	—	—
Austria	—	—	1,093	1,830	—	—	13,411	13,038	—	—
Belgo Luxemb. E. U.	0	60	1,459	1,821	134	123	22,348	24 996	—	—
Bulgaria	—	—	44	117	—	—	1,356	1,559	—	—
Denmark	—	—	489	1 146	—	—	9,434	9,914	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	86	79	—	—	686	844	—	—
Finland	—	—	40	29	—	—	298	304	—	—
France	0	0	9,021	6,074	522	9	92,054	104,114	—	—
Greece	—	—	351	280	—	—	3,045	3,638	—	—
Hungary	—	—	489	1,060	—	—	8,047	9,961	—	—
Irish Free State	—	—	24	79	—	—	3,239	3,349	—	—
Italy	—	—	445	871	—	—	15 069	21,034	—	—
Latvia	—	—	201	77	—	—	1,151	1,199	—	—
Lithuania	—	—	141	126	—	—	877	1,047	—	—
Norway	—	—	364	849	—	—	7,236	5,514	—	—
Netherlands	595	1,138	9,588	8 900	6,301	5,181	126 976	152,545	—	—
Poland-Dantzig	—	—	1,995	1,248	—	—	14,405	14,035	—	—
Portugal	0	2	75	99	7	66	972	1,091	—	—
Romania	—	—	...	...	—	—	3,911	3,878	—	—
United Kingdom	2,619	2,363	1,113	2,165	7,718	8,494	230,697	276,108	—	—
Sweden	—	—	811	933	—	—	12,824	12,178	—	—
Switzerland	13	0	664	635	51	68	15 920	17,183	—	—
Czechoslovakia	—	—	1,808	2,822	—	—	26,550	27,055	—	—
Yugoslavia	—	—	289	247	—	—	2,471	1,845	—	—
U S S R	—	—	...	...	—	—	17,183	16 048	—	—
Canada	—	—	1,464	3,340	—	—	33,270	27,847	—	—
United States	—	—	28,371	51,549	—	—	715,424	580 159	—	—
Chile	—	—	...	...	—	—	1) 1,753	1) 1,162	—	—
Colombia	—	—	...	...	—	—	3) 4,925	3) 4,793	—	—
Peru	...	...	...	...	2) 9	2) 26	2) 43	2) 620	—	—
Uruguay	—	—	...	...	—	—	1) 648	1) 985	—	—
Iran	—	—	...	...	—	—	1) 11	1) 26	—	—
Japan	—	—	...	...	—	—	4) 2,665	4) 2,150	—	—
British Malaya	...	...	...	...	148	141	160	108	—	—
Palestine: Br. m. t.	—	—	...	...	—	—	624	785	—	—
Syria & Leb.: Fr. m. t.	...	...	...	...	—	—	9	13	—	—
Algeria	0	20	4	7	108	71	419	686	—	—
Egypt	—	—	...	...	—	—	545	496	—	—
French Morocco	—	—	...	...	—	—	119	95	—	—
Tunis	—	—	0	4	—	—	18	35	—	—
Union of South Africa	—	—	...	...	—	—	1) 2,480	1) 3,164	—	—
Australia	0	0	278	106	37	104	14,357	12,403	—	—
New Zealand	—	—	...	...	—	—	2) 2,831	2) 3,080	—	—
Totals	39,077	73,285	77,903	104,489	1,501,845	1,474,528	1,571,019	1,533,979	—	—

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1) Up to 31 August. — 2) Up to 31 July. — 3) Up to 30 June. — 4) Up to 31 March.

COUNTRIES	October				Four months (July 1-October 31)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Tea. — Thousand lb.										
Exporting Countries.										
Ceylon	18,667	14,006	0	0	66,721	62,814	0	0	202,290	0
China	...	...	...	...	1) 22,615	1) 28,266	1) 62	1) 152	91,904	917
Chosen	. .	...	...	...	1) 26	1) 31	1) 2	1) 0	154	22
Taiwan	...	...	...	...	2) 4,866	2) 4,449	2) 53	2) 29	22,313	134
India: by sea 5)	53,577	45,843	443	767	180,502	157,120	1,576	2,053	299,547	4,021
» : by land 5)	...	...	—	...	3) 893	3) 809	—	3) 66	15,752	1,764
Netherlands Indies:										
Java and Madura	...	...	...	...	1) 26,969	1) 26,228	1) 84	1) 170	116,709	639
Outer Provinces	...	...	—	—	1) 7,802	1) 6,819	—	—	28,479	—
Indo-China	...	...	...	...	2) 736	2) 549	2) 258	2) 214	3,364	1 493
Japan	...	...	...	..	..	..	. .	. .	4) 36,032	4) 1,012
Importing Countries.										
Germany	49	0	983	928	159	0	3 569	3 192	150	10 809
Austria	—	—	134	139	—	—	289	302	—	794
Belgo-Luxemb. E.U.	0	0	53	51	0	2	194	227	2	668
Bulgaria	—	—	18	4	—	—	31	35	—	84
Denmark	—	—	84	95	—	—	359	408	—	1 252
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	9	13	—	—	33	35	—	99
Finland	—	—	22	24	—	—	84	75	—	245
France	2	2	227	293	7	2	904	996	15	3 280
Greece	—	—	20	11	—	—	73	256	—	395
Hungary	—	—	44	86	—	—	141	176	—	511
Irish Free State	71	2	3 296	2,361	483	9	9,828	7 732	342	22,861
Italy	—	—	15	20	—	—	84	37	—	225
Latvia	—	—	7	9	—	—	22	24	—	73
Lithuania	—	—	4	9	—	—	22	22	—	82
Norway	—	—	31	31	—	—	143	99	—	362
Netherlands	15	9	2,372	2,632	64	33	8,666	9 456	112	27,322
Poland-Dantzig	0	0	353	320	0	0	1,235	948	2	4 081
Portugal	—	—	57	44	—	—	139	119	—	397
Romania	—	—	...	..	—	—	1) 183	1) 134	—	730
United Kingdom	5,635	6,019	65,394	51,123	23,113	23,618	191,181	178,042	70,804	439,361
Sweden	—	—	99	86	—	—	300	322	—	940
Switzerland	2	2	154	154	9	9	509	536	31	1,786
Czechoslovakia	—	—	154	216	—	—	454	507	—	1,235
Yugoslavia	—	—	62	71	—	—	179	126	—	401
U. S. S. R.	...	...	...	. .	1) 6,680	1) 5,794	1) 10,203	1) 8 757	10,507	32,849
Canada	—	—	4,070	3,913	—	—	13,276	11,019	—	38,923
United States	—	—	7,789	9,727	—	—	29,326	31,072	—	92,273
Chile	—	—	...	...	—	—	2) 1,462	2) 1,010	—	5,968
Peru	—	—	...	...	—	—	3) 152	3) 97	—	1,191
Burma 6)	13	—	370	—	79	—	1,248	—	948	728
Iraq	55	2	814	542	106	7	2,357	2,136	9	7,015
Iran	...	..	...	...	2) 0	2) 0	2) 3,115	2) 1,431	0	19,520
British Malaya	...	. .	...	...	1) 320	1) 337	1) 1,750	1) 1,607	1,168	5,251
Manchukuo	—	—	...	...	—	—	2) 3,402	3) 3,536	—	12,181
Palestine: Br. m. t.	...	...	...	...	1) 0	1) 0	1) 121	1) 123	0	721
Syria & Leb., Fr. m. t.	...	...	...	...	1) 0	1) 0	1) 46	1) 90	0	474
Turkey	—	—	...	...	—	—	1) 300	1) 589	—	2,504
Algeria	2	0	267	247	2	2	1,270	1,585	4	3,693
Egypt	—	—	...	...	—	—	1) 3,501	1) 3,893	—	15,779
French Morocco	...	...	...	...	1) 49	1) 55	1) 3,269	1) 6 354	417	19,903
Tunis	—	—	388	280	—	—	1,792	1,054	—	3,411
Union of South Afr.	..	...	..	...	2) 46	2) 163	2) 2,701	2) 2,661	668	15,448
Australia	46	40	3,836	4,090	179	201	15,007	16,711	608	48,797
New Zealand	...	...	...	...	3) 13	3) 13	3) 1 118	3) 1,193	163	11,325
Totals	**78,134**	**65,925**	**91,569**	**78,286**	**342,439**	**317,330**	**316,073**	**301,408**	**902,494**	**866,075**

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1) Up to 30 September — 2) Up to 31 August — 3) Up to 31 July — 4) Up to 31 May. — 5) From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with other foreign countries. 6) From 1st April 1937.

Coffee. — Thousand lb.

COUNTRIES	October				Four months (July 1-October 31)				Twelve months (July 1-June 30)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1937	1936	1937	1936	1937	1936	1937	1936	1936-37	1936-37
Exporting Countries:										
Costa Rica	...	...	—	—	1) 4,301	1) 2,101	—	—	56,174	—
Cuba	...	...	—	—	...	...	—	—	5) 8,620	—
Guadalupe	...	...	—	—	1) 95	1) 64	—	—	952	—
Guatemala	...	...	—	—	...	...	—	—	108,677	—
Haiti	5,254	3,117	—	—	10,838	10,426	—	—	56,412	—
Nicaragua	...	...	—	—	1) 1,618	1) 3,937	—	—	36 980	—
Santo Domingo	1,047	637	—	—	3,247	4,597	—	—	27,240	—
Salvador	...	...	—	—	1) 14,965	1) 11,874	—	—	138,797	—
Brazil	147,366	149,225	—	—	477,697	585,512	—	—	1,753,724	—
Colombia	47,988	34,558	—	—	187,704	170,363	—	—	522,354	—
Dutch Guiana	...	...	—	—	2) 542	2) 1,995	—	—	7,000	—
Peru	...	...	...	...	3) 496	3) 639	3) 0	3) 0	7,152	7
Aden: by sea	...	...	—	—	1) 1,495	1) 2,498	—	—	9,162	—
India by sea 6)	1,448	1,257	0	0	2,202	4,471	0	0	18,193	128
Netherlands Indies:										
Java and Madura	...	...	—	—	1) 27,487	1) 12,846	—	—	75,859	—
Outer Provinces	...	...	—	—	1) 56,994	1) 47,799	—	—	152,426	—
Indo China	...	...	...	...	1) 84	1) 86	1) 18	1) 20	937	157
Ivory Coast	...	...	—	—	1) 8,296	1) 1,872	—	—	15,313	—
Angola	...	...	—	—	...	...	—	—	41,465	—
Kenya	1,497	3,267	—	—	4,632	9,727	—	—	39,143	—
Madagascar	...	...	—	—	1) 9,092	1) 12,156	—	—	61,139	—
Importing Countries										
Germany	0	0	31,173	31,453	0	0	122,370	117,844	0	380,579
Austria	0	0	1,113	1,074	0	0	3,893	4,140	0	11,513
Belgo Luxemb. E. U.	265	152	7,895	11,830	2,061	461	31,079	39,999	3,538	113,896
Bulgaria	—	—	101	60	—	—	377	342	—	1,217
Denmark	—	—	6,334	5,483	—	—	20,069	22,203	—	62,673
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	22	9	—	—	90	77	—	223
Finland	—	—	3,708	4,440	—	—	15,238	17,015	—	47,803
France	4	4	30,805	31,932	13	18	130,966	128,973	37	413,205
Greece	—	—	445	1,739	—	—	3,796	5,016	—	14,163
Hungary	—	—	322	589	—	—	1,385	1,583	—	4,319
Irish Free State	0	0	15	31	0	0	165	157	0	547
Italy	0	0	7,374	5,454	4	4	24,824	20,153	7	81,007
Latvia	—	—	13	22	—	—	121	97	—	342
Lithuania	—	—	22	26	—	—	106	117	—	359
Norway	—	—	2,319	2,652	—	—	10 580	10,027	—	38,784
Netherlands	289	68	7 410	1,587	1,373	128	23,497	7,447	2,515	64,884
Poland-Dantzig	0	2	1,034	904	4	7	4,290	3,832	15	12,551
Portugal	190	229	919	820	725	926	4,559	4,539	2,231	14,581
Romania	—	—	...	...	—	—	1) 391	1) 1,362	—	7,368
United Kingdom	425	1,387	935	1,757	1,773	5,379	3,360	3,757	15,126	45,435
Sweden	—	—	9,354	9,253	—	—	34,181	34,622	—	105,547
Switzerland	0	2	1,819	1,124	2	2	7,888	8,860	4	34,300
Czechoslovakia	—	—	2,103	2,388	—	—	7,747	8,025	—	24,877
Yugoslavia	—	—	955	1,468	—	—	4,405	4,244	—	14,599
U S S R	—	—	...	...	—	—	1) 187	1) 137	—	710
Canada	18	13	2,350	2,557	88	68	10 697	11,169	276	38,951
United States	664	637	115,355	121,486	1,733	2,374	437,383	487,706	11,208	1,760,838
Chile	—	—	...	...	—	—	2) 1,241	2) 816	—	7,242
Uruguay	—	—	...	...	—	—	2) 871	2) 911	—	4,747
Ceylon	0	0	225	190	0	0	1,179	1,294	2	3,243
Burma 7)	0	—	24	—	7	—	101	—	4	152
Iraq	0	0	110	132	0	0	478	344	0	1,918
Iran	...	...	...	...	2) 0	2) 0	2) 24	2) 0	0	187
Japan	—	—	...	...	—	—	...	...	—	4) 11,111
British Malaya	...	...	...	...	1) 1,400	1) 1,684	1) 5,368	1) 5,401	5,919	18,023
Manchukuo	—	—	...	...	—	—	2) 86	2) 68	—	529
Palestine: Br. m. t.	...	...	...	...	1) 0	1) 0	1) 842	1) 421	0	3,190
Syria & Leb.: Fr.m.t.	...	...	...	...	1) 0	1) 0	1) 648	1) 556	0	2,566
Turkey	—	—	...	...	—	—	1) 2,476	1) 1,962	—	11,105
Algeria	0	0	2,908	3,131	0	0	11,647	11,204	4	30,688
Egypt	—	—	...	...	—	—	1) 3,836	1) 3,816	—	15,596
French Morocco	—	—	...	...	—	—	1) 1,367	1) 1,250	—	5,102
Tunis	0	0	322	192	0	0	1,107	919	0	3,104
Union of South Afr.	...	...	...	...	2) 2	2) 0	2) 4,445	2) 5,739	13	31,952
Australia	2	11	265	150	11	26	1,285	1,219	75	4,123
New Zealand	...	...	...	...	3) 0	3) 0	3) 24	3) 75	0	538
Totals	**206,457**	**194,566**	**237,749**	**243,933**	**820,981**	**894,040**	**941,687**	**979,458**	**3,178,693**	**3,450,679**

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1) Up to 30 September. — 2) Up to 31 August — 3) Up to 31 July — 4) Up to 31 May. — 5) Up to 31 March. — From 1st April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma th other foreign countries. — 7) From 1st April 1937

STOCKS

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	December 1937	November 1937	October 1937	December 1936	December 1935
	1,000 centals				
WHEAT:					
Canadian in Canada	34.438	43,170	43,634	57.122	139,385
U. S. in Canada	1.112	1,466	1,046	0	0
U. S. in the United States	68.828	78,156	84,898	42.188	48,704
Canadian in the United States	2 708	1,448	868	14.372	19,707
Of other origin in the United States	0	0	0	0	10
Total	*107.086*	*124,240*	*130,446*	*113.682*	*207,806*
RYE:					
Canadian in Canada	746	721	732	965	2,564
U. S. in Canada	381	463	595	0	0
U. S. in the United States	3 208	3,488	3,289	3.350	5,410
Canadian in the United States	0	0	0	262	0
Of other origin in the United States	0	0	0	0	15
Total	*4.335*	*4,672*	*4,616*	*4 577*	*7,989*
BARLEY:					
Canadian in Canada	5 361	5,981	6,090	5.192	4,348
U. S. in Canada	0	42	81	13	0
U. S. in the United States	6.293	6,417	6,467	9.860	8,758
Canadian in the United States	124	142	147	1.586	0
Of other origin in the United States	0	0	0	0	0
Total	*11.778*	*12,582*	*12,785*	*16.651*	*13,106*
OATS:					
Canadian in Canada	3.522	3,121	1,961	5.319	4,148
U. S. in Canada	1.407	880	105	40	0
U. S. in the United States	8.092	8,676	9,150	13.623	14,502
Canadian in the United States	0	0	0	2	77
Of other origin in the United States	0	0	0	0	0
Total	*13.021*	*12,677*	*11,216*	*18.984*	*18,727*
MAIZE:					
U. S. in Canada	596	1	1	3	1
Of other foreign origin in Canada	2.353	2,722	2.102	3.119	1,434
U. S. in the United States	12.668	2,898	3,165	4.584	2,501
Of other origin in the United States	0	128	276	180	77
Total	*15.617*	*5,749*	*5,544*	*7.886*	*4,013*

Quantities of cereals on ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	December 1937	November 1937	October 1937	December 1936	December 1935
	1,000 centals				
Wheat (and flour in terms of grain)	18,518	16,262	13,032	23,280	16,061
Rye	211	456	490	485	139
Barley	2,040	2,952	2,880	2,800	2,172
Oats	1,149	579	301	1,152	541
Maize	23,875	29,030	25,752	23,251	17,611

AUTHORITY: *Broomhall's Corn Trade News.*

Cereals and potatoes belonging to farmers in Germany.

PRODUCTS	Percentage of total production				Stocks in 1,000 centals			
	30 Nov. 1937	31 Oct. 1937	30 Nov. 1936	30 Nov. 1935	30 Nov. 1937	31 Oct. 1937	30 Nov. 1936	30 Nov. 1935
Winter wheat	48	59	53	55	41,300	50,700	47,900	51,900
Spring wheat	67	77	70	75	7,200	8,300	5,000	6,400
Rye	50	59	56	59	74,500	88,000	91,200	97,300
Winter barley	34	48	36	38	7,500	10,600	9,000	8,400
Spring barley	54	67	60	60	30,300	37,600	30,000	31,600
Oats	72	80	73	73	93,200	103,500	90,400	86,700
Late potatoes	67	76	66	66	750,700	851,500	650,300	577,800

AUTHORITY: *Marktberichtstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I A.)

Cereals in commercial elevators and mills in Germany 1).

PRODUCTS	Last day of month				
	November 1937	October 1937	September 1937	November 1936	November 1935
	1,000 centals				
WHEAT:					
Grain	...	22,223	22,723	12,026	27,289
Flour for bread	...	1,856	1,773	2,070	3,036
TOTAL 2)	...	*24,800*	*25,186*	*14,901*	*31,506*
RYE:					
Grain	...	21,868	22,068	12,458	23,362
Flour for bread	...	1,662	1,576	1,265	1,649
TOTAL 2)	...	*24,313*	*24,385*	*14,319*	*25,787*
BARLEY	..	6,065	6,438	2,407	3,408
OATS	...	3,594	3,508	2,679	3,748

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries) — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	December 1937	November 1937	October 1937	December 1936	December 1935
	1,000 centals				
WHEAT:					
Grain	5,664	5,400	5,136	3,768	4,608
Flour as grain	672	696	720	672	672
TOTAL	*6,336*	*6,096*	*5,856*	*4,440*	*5,280*
BARLEY	1,200	1,300	1,040	1,380	1,760
OATS	160	128	160	280	256
MAIZE	2,856	2,640	2,448	3,744	3,168

1) Imported cereals.
AUTHORITY: *Broomhall's Corn Trade News.*

Commercial cereals in Antwerp, Rotterdam and Amsterdam 1).

Products and location	Saturday nearest 1st of month 2)				
	December 1937	November 1937	October 1937	December 1936	December 1935
	1,000 centals				
Wheat:					
Antwerp	2,275	1,352	1,251	1,897	1,100
Rotterdam	1,722	769	401	628	584
Amsterdam	166	2	4	11	12
Rye:					
Antwerp	117	55	20	58	27
Rotterdam	77	77	46	33	24
Amsterdam	0	0	0	0	0
Barley:					
Antwerp	495	471	84	462	362
Rotterdam	66	71	77	13	353
Amsterdam	8	3	1	4	3
Oats:					
Antwerp	9	10	10	11	14
Rotterdam	9	0	0	0	0
Amsterdam	18	20	20	28	21
Maize:					
Antwerp	35	51	0	40	48
Rotterdam	77	33	44	44	154
Amsterdam	28	16	16	5	39

1) Imported cereals. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

Cotton stocks on hand in the United States.

Location	Last day of month				
	November 1937	October 1937	September 1937	November 1936	November 1935
	1,000 centals				
In consuming establishments	8,086	6,925	4,836	8,752	6,572
In public storage and at compresses	56,425	47,666	33,862	41,121	42,155
TOTAL	*64,511*	*54,591*	*38,668*	*49,873*	*48,727*

Cotton stocks at Bombay and Alexandria.

Location	Thursday nearest 1st of month				
	December 1937	November 1937	October 1937	December 1936	December 1935
	1,000 centals				
Bombay 1)	2,064	2,208	2,600	2,220	1,504
Alexandria 2)	2,177	1,705	897	2,693	1,977

1) Stocks held by exporters, dealers and millers. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: *East Indian Cotton Assn.* and *Commission de la Bourse de Minet-el-Bassal.*

Cotton stocks in Europe.

Location, Description	December 1937	November 1937	October 1937	December 1936	December 1935
	Thursday or Friday nearest 1st of month				
	1,000 centals				
Great Britain					
American	2 573	1 605	1 033	1 406	1 083
Argentine Brazilian	554	577	643	1 087	114
Peruvian	440	436	387	276	312
East Indian	180	234	289	245	89
Egyptian Sudanese	554	460	509	887	784
W Indian W and E African and other	311	305	319	146	58
TOTAL	*4 612*	*3 617*	*3 180*	*4 047*	*2 440*
Bremen					
American	759	542	355	637	444
Other	213	264	189	304	262
TOTAL	*972*	*806*	*544*	*941*	*706*
Le Havre					
American	1 171	866	461	1 022	329
French colonial	39	36	33	53	17
Other	97	107	134	130	62
TOTAL	*1 307*	*1 009*	*628*	*1 205*	*408*
Total Continent 1)					
American	2 259	1 631	845	1 774	1 133
Argentine Brazilian, Peruvian	198	247	186	264	219
East Indian	56	59	89	110	84
Egyptian	47	56	63	76	185
W Indian W and E African and other	143	133	119	19	154
TOTAL	*2 703*	*2,126*	*1 302*	*2 243*	*1,775*

1) Including Bremen and Le Havre

AUTHORITIES *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*

PRICES

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the yearly averages on the monthly)

Description	17 Dec. 1937	10 Dec. 1937	3 Dec 1937	26 Nov. 1937	19 Nov 1937	Average Nov 1937	Average Dec. 1936	Average Dec. 1935	Average Commercial Season 1) 1936-37	Average Commercial Season 1) 1935-36
Wheat.										
Budapest (*a*): Tisza wheat, 78 kg. p. hl. (pengö p. quintal)	21.95	20 65	20 67	20.58	20.72	20.81	19.27	18 31	19.04	16.78
Braila: Good quality (lei p. quintal)	520	520	520	525	515	520	480	n. q	* 486	* 442
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	138 1/2	132 1/2	135 1/8	128 1/2	135 5/8	135 1/4	122 3/4	85 3/8	122 1/2	85
Chicago: No 2 Hard Winter (cents p. 60 lb.)	n. 98	n. 101	n. 101 1/2	95	n. 96 1/2	n. 97	136 1/8	115 1/4	130	109 3/4
Minneapolis (cents p. 60 lb.):										
No. 1 Northern	105 5/8	107 3/8	107	102 3/4	103 7/8	104	148 3/8	121	141	119 1/2
No. 2 Amber Durum	...	97 3/4	96 3/4	94 3/8	94	93 5/8	150 3/8	110 3/4	138 1/8	111 7/8
New York: No. 2 Hard Winter (cents p. 60 lb.)	115 1/2	117 3/4	117	112 1/4	113 1/2	113 1/4	149 1/2	129 1/8	142 3/8	124 1/4
Buenos Aires (*a*). Barletta, 80 kg. p. hectol. (paper pesos p. quintal) 2)	11.85	12.00	11 85	12 20	14 40	13 87	11.20	9.40	12.28	9.53
Karachi: White Karachi, 2% barley, 1 1/2 % impurities (rupees p. 656 lb.)	28-8-0	29-6-0	29-13-0	29-15-0	30-10-0	30-5-3	31-13-0	25-0-9	31-4-11	24-7-6
Berlin: Home grown (free at Brandenburg stations; Rm p. quintal) 3)	20.60	20.60	20.60	20.30	20 30	20.30	20.80	20.20	20.52	20.53
Hamburg (c i f.; Rm. p. quintal):										
No. 1 Manitoba	15.65	15.55	15.52	14 86	15 43	15.20	* 13.39	9 63	13.32	9.51
Barusso, 80 kg. p hl	7) 11 41	7) 11.57	7) 11 65	7) 11 59	7) 11 96	7) 11 77	11.13	8.81	11.90	8.74
Antwerp (francs p. quintal)										
Home grown	133.00	133 00	133 00	135.00	137 00	138 00	130 50	101 00	135 40	100.90
No. 1 Manitoba (Atlantic) (in bond)	180 00	177 00	176.00	175 00	177.50	178 75	156 25	114.60	154 50	110.80
Barusso (in bond) 4)	155.00	155.00	156 00	156.00	158 00	158 00	133.75	101.50	141.05	103.10
Paris: Home-grown (delivery regional depots: 76 kg. p hl; frs p. quintal) 5)	184.00	184 00	184.00	183.00	183.00	183.00	147.00	79.60	149.35	91.40
London (Mark Lane): Home-grown (sh. p. 504 lb. on the farm)	38/-	39/-	39/-	35/-	40/6	39/-	* 41/-	* 26/-	40 1 3/4	27/5 1/4
Liverpool and London (c i.f., parcels, shipping current month; sh. p 480 lb)										
Danubian (on sample)	n. q.	n q.	n. q.	n. q	n q	* 37/1	n. q.	23/10 1/2	* 38/1 1/4	* 25/5 1/4
Russian (on sample)	38/1 1/2	38/9	38/3	8) 37/6	39/9	39/6 1/4	n q	* 30/3	n. q	* 29/-
No 1 Northern Manitoba (Atlantic)	54/11 1/4	54/-	53/0 3/4	9) 50/6	9) 53/1 1/2	9) 52/5 1/4	48/0 1/4	33/10 1/2	* 46/0 1/4	32/9
No. 1 Northern Manitoba (Pacific)	10) 54/7 1/2	10) 53/9	10) 53/-	9) 50/6	9) 53/1 1/2	52/8 1/4	47/7 3/4	33/9 3/4	* 45/9 3/4	32/5 1/4
No. 3 Northern Manitoba (Pacific)	10) 45/6	10) 45/-	10) 44/9	9) 41/10 1/2	9) 44/1 1/2	9) 43/8 1/2	45/6 1/2	31/10 1/2	44/1	30/5 1/4
No. 2 Hard Winter (Gulf)	38/9	40/-	39/-	9) 37/9	9) 39/-	9) 39/1	n. q.	n. q.	n. q.	n. q
Rosafé, 63 1/2 lb. p bush (afloat)	7) 39/3	7) 40/-	7) 39/9	7) 38/-	7) 41/-	7) 39/9	7) 39/6	7) * 31/5	* 39/3 3/4	* 28/9
White Karachi, choice	37/3	8) 36/7 1/2	8) 37/-	38/3	40/6	40/11 1/4	44/1 1/4	n. q.	42/5 3/4	* 31/7 1/2
West Australian (cargoes)	37/3	37/-	38/6	38/3	40/6	40/3	44/11	10) * 30/-	43/2 1/2	* 30/2 1/2
New South Wales (cargoes)							44/9	10) * 29/7	43/0 1/2	* 29/9
Milan (*b*): Home-grown, soft, "Buono mercantile" 78 kg. p hl (lire p. q.) 6)	138.00	138.00	138.00	138.00	138 00	138.00	124 00	111.10	125.30	114.20
Rye.										
Berlin: Home grown (free at Brandenburg stations; Rm p quintal) 3)	19.00	19.00	19.00	18 80	18.80	18.80	17.10	16.50	16.82	16.68
Hamburg: Plata, 72-73 kg p hl (c. i f.; Rm p quintal)	7) 10 48	7) 10 55	7) 10.53	7) 10 53	7) 10 62	7) 10.56	9.34	5.22	10.30	5 27
Budapest: Pest rye (pengo p quintal)	18 95	18.90	18 75	18.88	18 55	18.69	16 26	16.24	17.17	14.44
Warsaw Good quality (zloty p quintal)	23 75	24 13	24.37	24.37	24.37	24.15	20.37	12 74	21.58	13.26
Winnipeg: No. 2 (cents p 56 lb)	75 1/2	74 7/8	74 1/4	72 7/8	72 3/8	73 1/8	100 1/2	42 1/4	98 3/4	43 1/4
Minneapolis. No 2 (cents p. 56 lb).	69 1/8	69 1/2	66 3/4	66 3/8	69 1/4	68 1/2	110 1/8	50 1/8	99 7/8	53 1/8
Groningen (*c*): Home-grown (fl. p. quintal)	7.20	7.17	7.17	7.17	7.05	7.15	8.22	6.79	* 8.12	* 7.08

* Indicates that the product was not quoted during part of the period under review. n q. = *not quoted.* — n. = *nominal* — *a*) Thursday prices — *b*) Saturday prices — *c*) Prices on preceding Tuesday.

1) August-July — 2) As from February 1937: No 2 Hard, basis 80 kg p. hl. — 3) Fixed producers' prices for the *price region of* Berlin. See *Govt Measures*, No 11, p 74, and *Crop Report*, Aug. 1936, p. 609, and July 1937, p. 571. — 4) Commencing Aug 1937, "Bahia". — 5) During Aug. 1935, spot quotations in the free market; Sept. 1935-Aug. 1936, prices in the regulated market, delivery current month; subsequently, fixed producers' prices (see notes in *Crop Report*, Sept. 1936, p. 691, and Sept. 1937, p 750). — 6) Commencing Aug 1936, prices free at mills in Milan (see note in *Crop Report*, June 1937, p. 474) — 7) New crop; shipping Jan.-Feb. — 8) Afloat. — 9) Shipping December — 10) Shipping January.

DESCRIPTION	17 Dec 1937	10 Dec 1937	3 Dec 1937	26 Nov 1937	19 Nov 1937	AVERAGE				
						Nov 1937	Dec 1936	Dec 1935	Commercial Season 1)	
									1936-37	1935 36
Barley.										
Warsaw Malting, good quality (zloty p quintal)	21 75	22 00	22 25	22 25	23 00	23 19	26 00	16 62	* 25 12	* 15 97
Braila Average quality (lei p quintal)	370	377	375	375	360	367	335	247	* 321	242
Prague Malting good quality 68 kg hl (crs p quintal) 2)	134 00	134 00	134 00	133 00	133 00	133 00	152 00	131 00	* 135 05	* 131 70
Winnipeg No 4 Western (cents p 48 lb)	56 1/4	56	54 3/4	55 1/4	56 1/8	57 1/4	72	31	66 3/4	34 3/4
Chicago Feeding (on sample cents p 48 lb)	51	51	51	50	50	50 1/2	80 5/8	46 1/2	74 1/4	45 1/4
Minneapolis No 2 Feeding (c p 48 lb) 3)	53 1/2	53 1/2	52 1/2	53 1/2	53 1/2	54	89 3/8	37 1/2	77 1/2	39 1/8
Berlin Home grown fodder (free at Brandenburg stations Rm p quint) 4)	17 20	17 20	17 20	17 00	17 00	17 00	16 80	16 80	16 94	16 98
Antwerp (in bond francs per quintal)										
Danubian	104 00	103 00	103 00	105 50	107 00	108 10	112 40	69 85	107 75	74 10
No Federal	102 00	101 00	100 00	101 00	103 25	* 103 10	n q	n q	n q	n q
London (Mark Lane) English malting best quality (sh p 448 lb on farm)	50/-	57/6	57/6	57/6	57 6	57 6	* 42/-	* 42/	* 41 2	38/3
Liverpool and London (c i f parcels shipping current month sh p 400 lb)										
Danubian 3 impurities	n q	n q	n. q	n q	n q	n q	n q	n q	* 23/5	n q
Russian (Azoff Black Sea)	n q	n q	6) 25 3	n q	n q	n q	n q	14 9 1/4	n q	* 14/10
Canadian No 3 Western	28/	28 -	27/7 1/2	27 1 1/2	27 9	27/9 3/4	n q	18 3	* 27 9	18/0 1/2
Californian malting (sh p 448 lb)	35 6	36/9	37	) 37/9	37 6	37/11 1/4	8) 43 4 3/4	25/4 1/2	* 40 6	24/8 3/4
Plata (64 65 kg p hl)	8) 25 3	8) 25 6	8) 25/4 1/2	8) 25 7 1/2	8) 26 -	8) 25 10 3/4	8) 25/1	15/2	25 0 3/4	15/11 1/8
Persian (Iraquian)	9) 26/	9) 25 10 1/2	) 25 3	) 25/9	26	26 0 3/4	8) 25 1	14 7	23/11	15/4 1/4
Groningen a) Home grown winter (fl p q)	6 02	6 02	7 05	7 05	7 10	7 13	8 14	4 67	7 68	4 91
Oats.										
Braila Good quality (lei p quintal)	n q	n q	n q	n q	n q	n q	* 240	n q	* 274	* 294
Winnipeg No White (cents per 34 lb)	50 3/8	48 1/4	47 3/4	46	47	47 1/8	50 5/8	30 1/4	52 /8	34 3/4
Chicago No White (cents per 32 lb)	32 3/8	33	33 3/4	31 4	32	33 3/4	52 1/4	31	49 3/4	32 1/8
Buenos Aires b) Current quality (paper pesos p quintal)	6 15	6 15	6 15	6 25	6 15	6 19	5 93	n q	6 25	* 6 38
Berlin Home grown (free at Brandenburg stations Rm p quintal 4))	16 70	16 70	16 70	16 50	16 50	16 50	16 40	16 40	16 77	16 79
Paris Home grown black and other (delivery regional depots frs p quintal)	127 75	126 50	127 60	125 35	125 85	125 80	121 50	55 45	115 80	66 40
London (Mark Lane) Home grown white (sh p 35 lb on farm)	27	27	26 9	26 [illegible]	26 9	26 10 1	* 22	* 18 7	23 9 3/8	18 7 1/2
Liverpool and London (c i f parcels shipping current month sh p 3[illegible] lb										
Canadian No Western (Atlantic)	n q	n q	n q	n q	n q	n q	* 25 9	n q	23/4 1/2	18 9
Plata (f a q)	) 15 9	8) 16	) 16	) 16 3	) 16 7	) 16 6 4	8) 16 1 1	8) 13 8 3/4	16 3 3/4	14 5
Milan c) (lire p quintal)										
Home grown	101 50	101 50	101 50	101 50	101 50	101 50	94 50	98 00	99 60	* 97 10
Foreign	98 00	98 00	98 00	98 00	98 00	98 00	95 00	93 50	100 45	92 60
Maize.										
Braila Average quality (lei p quintal)	300	300	280	325	330	327	246	237	* 264	243
Chicago No 3 Yellow (cents p 56 lb)	58	56 4	54	53 1/8	52 4	54	107 1/2	58 3/4	103 3/8	72 5/8
Buenos Aires b) Yellow Plata (paper peso p quintal)	8 70	8 45	7 85	7 57	7 55	7 57	5 73	4 45	5 85	4 51
Antwerp (in bond francs p quintal)										
Yellow Plata	99 75	98 50	95 75	96 50	96 00	97 25	78 45	56 05	78 65	56 75
Cinquantino (Argentine Cuarentino)	104 00	102 00	98 00	9) 00	99 50	105 75	83 00	58 10	83 10	60 45
Liverpool and London (c i f parcels shipping current month sh p 480 lb)										
Danubian	n q	n q	n q	n q	n q	n q	* 25 10	16/7 1	* 23/5	* 16/11
Yellow Plata	29/10 1/2	29/1 1/2	28/3	27 9	28	28/	23 2 3/4	16 1 1/4	22/4	16/0 1/2
No White flat African	6) 28/6	6) 28 3	6) 27 9	27 9	27 10 1	27 7 1	n q	n q	n q	* 17/-
Milan c) «Alto Milanese» (lire p quint) 5)	86 00	86 00	86 00	86 00	86 00	86 00	84 00	83 50	85 55	81 75

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* Indicates that the product was not quoted during part of the period under review — n q = not quoted — nominal a) Prices on preceding Tuesday b) Thursday prices c) Saturday prices

1) Barley and oats August July maize May April 2) Monopoly price paid to producer for delivery Prague see *[illegible] Report* Aug 1936 p 601 3) From August 1936 delivered barley only quoted — 4) Fixed producers prices for the *[illegible] region* of Berlin See *Govt Measures* No [illegible] p 57 and *[illegible]* Aug 1936 p [illegible] and July 1937 p 571 — 5) As from Oct 1936 maximum fixed price for yellow and other except white home grown maize Oct Dec 1936 free at Milan station, subsequently free at producer's station 6) Afloat — 7) Shipping Dec Jan — 8) New crop shipping Jan Feb 9) Shipping January

Description	17 Dec. 1937	10 Dec 1937	3 Dec 1937	26 Nov. 1937	19 Nov. 1937	Average				
						Nov 1937	Dec 1936	Dec 1935	Commercial Season 1)	
(Rice milled).									1936	1935
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n q	n. q.	n. q.	56.50	* 57.30	56.60
Milan (*b*) (lire p quintal):										
Vialone, oiled 2)	n. q.	n. q	n q.	n. q	n. q.	n. q.	160.00	195.00	177.30	159.20
Maratelli, oiled 2)	183 50	183.50	183.50	183 50	183 50	183.50	140 00	n 161.00	155.05	136.60
Originario, white 2)	154 00	154.00	154.00	154.00	154.00	154.25	121.00	133.00	125.65	121.75
Rangoon (rupees and annas p. 7500 lb):										
No. 2 Burma	251-0	253-0	263-0	268-0	265-0	269-12	269-0	266-4	264- 6	253-8
Small mills' specials	224-0	225-0	235-0	240-0	238-0	242-6	247-0	205-8	223- 5	227-4
Big mills' specials	218-0	220-0	230-0	238-0	233-0	241 8	236-0	194-0	214-12	219-9
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % brokens	9 47	9.47	9 47	8.95	9 03	8 82	7.43	3.88	4.96	4.18
No. 2 Japan, 40 % brokens	9 06	9 06	9.06	8 62	8.62	8.51	7 26	3 68	4.74	3.96
Marseilles (*a*): No. 1 Saigon (c. i. f ; frs. p quintal)	118.00	117.00	121.00	117.00	120.00	118 00	* 91.00	52 75	63.65	54.80
London (*a*) (c i. f , shillings p. cwt.).										
No. 3 Spanish Belloch oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n q.	*11/10½	* 10/4⅛	* 12/7
No. 6 Italian good, oiled	17/6	17/6	17/6	17/6	17 6	17/6	n. q.	n. q.	n. q.	* 14/0½
American Blue Rose, extra fancy.	14/10½	14/9¾	14/10½	15/-	15 -	15/3¼	* 17/7	* 17/2	18/4¼	* 15/5¾
No 2 Rangoon or Bassein (Burma) 3).	6) 8/7½	6) 8/9¾	6) 8/9¾	6) 9/-	6) 9 -	6) 9/1¾	6)*9/0¼	6)* 7/3¾	7/9¾	7/8
No. 1 Saigon	7) 7/11¼	7) 8/6	7) 8/6	7) 8/6	7) 9 -	7) 8/7	7)* 9/7¾	7)* 6/6	8/0¼	7/5¼
Siam Super, white 3).	6) 8/10½	6) 9/3	6) 9/4½	6) 9/7½	6) 9/3	6) 9/4½	6)*10/2¼	6)* 8/1½	9/0½	9/2¾
Tokyo Chumai (brown Japanese, average quality, yen p koku)	...	...	...	...	.	8) ...	* 29.37	29 05	30 70	29.87
Linseed.										
Buenos Aires (*a*): Current quality (paper pesos p. quintal)	15.75	15 55	15.10	14 65	15 75	15 42	14 01	13 30	14.34	12 28
Bombay: Bold (rupees p cwt.)	7-14-6	7-13-0	7-11-6	7-10-0	7-12-0	7-11-10	7 5-5	6-14-10	7-6-7	6-10-8
Antwerp: Plata (in bond; frs. p. quint.).	181.00	180.00	176 00	178.00	183 00	185 90	167 40	149 00	162.25	127 55
London (c i. f.; £ p. long ton.):										
Plata (delivery Hull)	12-13-9	12-12-6	12-5-0	12-2-6	12-15-0	12-13-3	11-17-6	10-11-7	11- 6-4	9-13-2
Bombay Bold	15-5-0	15-2-6	14-17-6	14-12-6	15-0-0	15-1 3	n 14-14-6	12-19 8	13-12-1	12- 5-5
Duluth: No 1 Northern (futures; cents p. 56 lb.)	9) 197	9) 193	9) 196	9) 193	9) 194¼	9) 193⅞	9) 213⅞	9) 179⅛	191	172¼
Cottonseed.									1936-37	1935-36
Alexandria (*a*) (piastres p. ardeb):										
Upper Egypt	50.6	49.4	47 4	49.2	51 0	50 8	* 85 4	65 0	77.8	69.7
Sakellaridis.	46.5	45 1	43 4	45.2	47 1	46 8	* 80 2	59 5	72 6	* 64.0
London: Sakellaridis (c i.f., delivery Hull; £ p. long ton) 4)	5-10-0	5-11-3	5-7-6	5-7-6	5-11-3	5-12-10	n. 8 13-3	n. 6 6-7	7-18-8	n 6-13-7
Cotton.										
New Orleans: Middling (cents p. lb.).	8.35	8.22	8 12	8.19	7.90	8.02	12.70	11 82	12.78	11.64
New York: Middling (cents p. lb).	8.31	8 22	8.08	8.12	7.84	7.99	12 86	12 00	12.91	11 74
Bombay (rupees p. 784 lb.):										
Broach, f. g. (futures)	10)168-12	10) 165-4	10) 162-0	10)163-12	10) 158-8	10) 160-3	10)223-12	10)214 12	224-14	210- 4
Broach, f. g. (spot)	n q	n. q.	n. q.	n. q.	n q.	n q	n q	234-8	* 228- 4	* 219- 0
Oomra, fine (spot)	153-0	153-0	153-0	n. q.	n q.	n. q.	206-4	211-0	* 214-14	198-12
Alexandria (*a*) (talaris p. kantar):										
Sakellaridis, f. g. f.	14 70	14.90	14.70	14.60	15.15	15.00	* 18.87	17.40	19.22	16.11
Ashmuni, f. g f.	9.75	9.85	9 80	9.80	9.85	9.80	* 13 42	14.90	15.19	13 61
Bremen: Middling (U S. cents p. lb.).	10.12	9.96	9.82	9 80	9.62	9.69	14.82	14.12	15.01	13.88
M. g. Broach, f. g. (pence p. lb.).	n. 4.65	n. 4.55	n. 4.50	n. 4.50	n 4.40	n. 4.37	n. 5.46	n. 6.61	n. 5.78	n. 5.86
Le Havre: Middling (Gulf; frs p. 50 kg.)	357.50	347.00	344.50	339.00	332.50	339 00	377.30	247.75	366.60	240.00
Liverpool (pence per lb.):										
Middling, fair 5)	5.61	5.50	5 45	5.44	5.35	5.40	n. 8.06	n. 7.54	n. 8.26	n. 7.58
Middling	4.81	4.70	4.65	4.64	4.55	4.59	6.93	6.49	7.11	6.53
São Paulo, g. f.	5.06	4.95	4 90	4.89	4.80	4 84	7.00	7.13	7.21	6.81
Broach, good staple, f. g.	n. 3.90	n. 3.87	n. 3.82	n. 3.84	n. 3.72	n. 3.75	n. 5.54	5.72	n. 5.71	5.43
C. P. Oomra, superfine	4.20	4.17	4.12	4.14	4.02	4.05	5.73	6.05	5.85	5.61
Egyptian Sakellaridis, f. g. f.	7.94	8.07	n. 8.11	n. 8.16	n. 8.20	n. 8.25	10.47	9.70	10.79	9.18
Upper Egyptian, f. g. f.	6.11	6.01	5.93	5.05	6.01	6.04	7 61	7.72	8.46	7.49

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* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n = *nominal*. — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Producers' prices, including sacks: f. o. r., from 22 Oct. 1936 to 20 Feb 1937 and from 1st Oct. 1937; during the intermediate period, prices free at wholesalers' stores. See also *Crop Report*, Oct. 1937, p. 861. — 3) As from June 1936, "London Standard". — 4) Spot prices, delivery London, as from 15 Jan 1937. — 5) Commencing August 1937 the quotations are based on the official classification "Universal Standards", 1935, instead of that of 1923; this refers to best quality "Super good middling". — 6) Shipping Jan.-Feb. — 7) Shipping Feb.-March. — 8) 12 Nov.: 33.20; 5 Nov.: 33,50; 29 Oct.: 33,20; 22 Oct.: 33,50; Oct. av.: 33,16. — 9) December futures. — 10) April-May futures.

DESCRIPTION	17 Dec 1937	10 Dec 1937	3 Dec 1937	26 Nov 1937	19 Nov 1937	Average				
						Nov 1937	Dec 1936	Dec 1935	Commercial Season 1936	Commercial Season 1935
Bacon.										
London Provision Exchange (*a*) (shillings p. cwt.)										
English No. 1 lean sizable	97/	97/-	97/-	97 -	95 -	93/6	92/5	82/4	91/9	89/11
Danish No. 1 sizable	97	97/-	95	92/-	92	96	92/	82/9	93/8	88 6
Irish No. 1 sizable	95 6	94/6	94/6	90	89 6	88/9	91/	82/-	91/10	88/8
Lithuanian No. 1 sizable	90/-	90/-	90	86/-	85 -	84 3	85/	76/	84/10	82/1
Dutch No. 1 sizable	94/-	94/-	93	89/	88	87/3	88/	78/	89/7	85/4
Polish No. 1 sizable	90/	90/-	90/-	86 -	85/	84 3	85/-	74/-	84/9	80/-
Swedish No. 1 sizable	94/-	94/	93/-	89/	88	87/3	88/	78/	89/5	85/2
Canadian No. 1 sizable	89/-	89/-	89 -	85 -	85/-	84/	82/-	73/	84/-	79/3
Butter.										
Copenhagen (*b*) Danish (crs p. quint.)	283 00	275 00	278 00	259 00	256 00	271 75	191 40	226 00	207 15	192 30
Leeuwarden Commission for butter quotations (*b*) Dutch (cents p. kg.) 1)		84	84	79	88	96	65	56 3/4	57 5/8	48 7/8
Antwerp (frs p. kg.)	25 95	26 10	25 10	24 60	25 50	25 59	22 90	19 60	19 00	17 90
Germany (*c*)(fixed prices Rm p. 50 kg.) 2)										
With quality mark	130 00	130 00	130 00	130 00	130 00	130 00	130 00	130 00	130 00	130 00
Creamery	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123 00	123 00
London (*f*) English creamery finest quality (shillings p. cwt.)	168/	168/	168/	168/	168	172/8	136/9	123 2	129/1	119 6
London Provision Exchange (*e*) (shillings p. cwt.)										
Danish creamery unsalted	155	150 6	152/	143 6	143	149 3	113 1	127/7	119/1	112/9
Estonian unsalted	n q	n q	n q	n q	n q	n q	n q	n q	* 105/7	* 81/11
Latvian unsalted	n q	n q	n q	n q	n q	n q	n q	n q	n q	* 86/1
Dutch creamery unsalted	116	114/	113/	110/	122	130/6	95/	97/3	98/1	93/4
Argentine finest unsalted	109	107	109	107	n q	n q	93 5	* 92/9	* 97/1	* 82/10
Siberian salted	n q	n q	n q	n q	n q	n q	93/2	88/9	* 100/2	* 90/7
Australian finest salted	113	108 6	111/6	112 6	120 6	129/9	97/7	88/10	99 10	89 7
New Zealand finest salted	114	110 6	114/6	114/6	121	130/9	99 2	89/6	100 8	91/1
Cheese.										
Italy (lire p. quintal)										
Parmigiano Reggiano 1st quality production 1935 3)	1 280 00	1 280 00	1 280 00	1 280 00	1 280 00	1 222 50	800 00	745 00	* 870 60	775 45
Parmigiano Reggiano 1st quality production 1936 3)	1 150 00	1 150 00	1 150 00	1 150 00	1 150 00	1 087 50	850 00	695 00	896 70	734 25
Gorgonzola green mature choice	5) 800 00	5) 800 00	5) 800 00	5) 800 00	5) 800 00	5) *800 00	650 00	565 00	569 80	508 90
Fine Roman Pecorino choice 4) (lire p. q.)	6) 1 050 00	1 050 00	1 050 00	1 050 00	1 050 00	1 000 00	975 00	1 125 00	1 121 90	865 50
Alkmaar Edam 40 + (40% butterfat with the country's cheese mark) factory cheese small (florins p. 50 kg.)		21 25	21 25	21 50	22 75	22 19	15 75	15 81	17 56	14 84
Gouda (*c*) Gouda 45 + (wholemilk cheese with the country's cheese mark) home made 1st qual. (florins p. 50 kg.)		28 50	28 50	29 00	29 00	29 25	21 00	23 06	21 49	19 75
Kempten (*c*) (Rm. p. 50 kg.)										
Soft cheese green 20 % butterfat	29 00	29 00	29 00	29 00	29 00	29 00	29 00	26 00	26 50	26 00
Emmenthal from the Allgau whole milk cheese 1st quality	80 00	80 00	80 00	80 00	80 00	80 00	80 00	80 00	80 00	77 00
London Provision Exchange (*e*) (shillings p. cwt.)										
English Cheddar finest farmers	95	95	95	95	93	93/6	87	76 6	* 80/-	* 77/8
English Cheshire Nat. Mark Selected	123/8	123 8	121/4	121/4	123 8	123 1	93 4	91/7	78/3	80/5
Italian Gorgonzola	115/6	114/4	113 2	110 10	109 8	109/11	108	n q	* 106 7	* 102 2
Dutch Edam 40 + (*d*)	66 6	66	66/	65/	65 6	65/6	50 4	52 1	48/7	44/4
Canadian finest white (*d*)	73/	73/-	72/6	72/6	72 6	73	71/2	58 3	66/4	60 3
New Zealand finest white	65/3	66/3	68/3	68 9	71 3	71/9	61 5	53 7	60/8	48 9

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* Indicates that the product was not quoted during part of the period under review. — n. q. [illegible] nil. — *a*) Average prices Thursdays and Friday mornings. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average price for the week. — *e*) Saturday prices.

1) Home prices are increased by a consumption tax of 40 cents per kg. from 1 Oct. to 18 Nov., of 55 cents from 19 to 25 Nov. and 65 cents subsequently. — 2) See *Crop Report* April 1934, p. 306. — 3) Prices of 1935 cheese are compared with the yearly and monthly averages of cheese made in 1933 and 1934, prices of 1936 cheese with 1934 and 1935. The yearly averages refer to the period from Sept. to August. As from 6 Oct. 1936 maximum prices between wholesaler and retailer for choicest quality, packing included. Up to the end of February 1937 and re-commencing July 1937 these prices were f. o. r. sellers' stations, during the intermediate period, free at retailers' shops. — 4) Export quality until the end of June 1937, subsequently Home consumption quality f. o. r. Rome, comsuption tax not included. — 5) Prices between wholesaler and retailer for choicest quality, f. o. r. sellers' stations excluding packing. — 6) 1936-37 cheese free at salting magazine.

Description	17 Dec. 1937	10 Dec. 1937	3 Dec. 1937	26 Nov. 1937	19 Nov. 1937	Average: Nov. 1937	Average: Dec. 1936	Average: Dec. 1935	Average: Commercial Season 1) 1936	Average: Commercial Season 1) 1935
Eggs.										
Antwerp, auction: Belgian, average qual. (frs. p. 100)	75.00	69.00	67.00	70.00	78.00	76.50	46.25	68.00	50.80	48.35
Denmark (*a*): Danish for export (crs. per quintal)	...	166.00	160.00	160.00	160.00	164.00	* 127.50	166.80	108.20	106.75
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100):										
Fixed price for export into Germany	...	...	...	...	...	...	4.66	4.57	3.83	3.75
Price for other destinations	...	...	...	...	..	. .	4.14	4.52	3.46	2.97
Warsaw (*b*): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	156.20	151.20	151.20	151.20	151.20	148.50	145.00	160.17	100.13	104.43
Berlin (*c*). German, big, new laid (Rm. p. 100):										
marked « G I S », 65 gr. each	11.25	11.25	11.25	11.25	11.25	11.25	12.00	11.50	10.77	10.57
marked « G I B », 55/60 gr. each	10.25	10.25	10.25	10.25	10.25	10.25	10.00	10.00	9.26	9.34
London Egg Exchange (*d*) (sh. p. 120):										
English, National Mark, specials	24/6	24/6	26/6	26/6	25/-	25/6	22/3½	* 22/1	16/9	15/9
Belgian, 15 ½ lb. p. 120	15/4½	14/4½	14/6	n. q.	n. q.	n. q.	11/5¾	* 14/1½	* 10/8¾	* 11/3¼
Danish, 18 lb. p. 120	7) n. q.	17/6	17/6	8) n. q.	16/9	* 16/10	9) 14/8	* 17/8½	12/8½	12/5
Northern Irish, 18 lb. p. 120 2)	23/6	23/6	25/6	25/6	24/6	24/7¾	21/4¾	* 22/-	* 14/8¼	15/1½
Dutch, all brown, 67/69 grams each	18/4½	18/-	18/1½	18/7½	17/9	17/10	17/1	* 18/7½	13/10	13/2¼
Polish, 51/52 grams each	n. q.	n. q.	n. q.	n. q.	8/9	* 8/5½	8/4¾	* 8/10¾	* 7/2½	* 7/1¼
Chinese, violet	n. q.	9/10½	9/7½	9/7½	9/1½	9/4¼	8/9¼	* 9/11¼	* 9/2½	* 8/10½
Australian, 16 lb. p. 120	14/4½	14/1½	14/3	13/7½	13/-	13/5½	11/7½	* 12/11½	* 12/8¾	* 11/2½
Ocean freight rates 3)										
Shipments of wheat and maize.									1936-37	1935-36
Rates in shillings per quarter:										
Churchill to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/10¼	n. q.
Montreal to United Kingdom	n. q.	n. q.	n. q.	4/3	4/3	4/3	n. q.	n. 2/2	* 2/6	* 2/1
St. John to Liverpool 4)	4/-	4/-	3/9	n. q.	n. q.	n. q.	2/10½	2/1	* 2/10½	* 2/1½
New York to Liverpool 4)	3/3	3/3	3/9	4/-	4/-	3/10½	n. q.	* 1/6	n. q.	* 1/6
Northern Range to U. K./Continent	3/-	3/-	3/-	3/9	3/9	3/10½	2/6	* 2/-	* 2/9	1/10
Gulf to United Kingdom 4)	4/3	4/3	4/3	4/9	4/9	5/2¼	n. q.	* 2/6	n. q.	* 2/6
Rates in shillings per long ton:										
Danube to Antwerp/Hamburg	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 20/4	* 15/7
Black Sea to Antwerp/Hamburg	19/6	19/6	22/9	24/6	24/6	24/7½	n. 18/10½	n. 10/1½	* 16/10	* 10/2
North Pacific to United Kingdom	38/-	38/-	n. 38/6	n. 40/-	n. 40/-	10) n. 42/4	28/3	21/7	* 29/9	* 20/-
La Plata « Down River » 5)/Bahia Blanca to U. K./Continent	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	21/-	16/6	23/11	16/6
La Plata « Up River » 6)/Necochea to U. K./Continent	31/9	31/9	31/9	33/6	34/-	34/1	22/3	17/7	25/2	17/8
South Australia to U. K./Continent (in bulk)	n. 47/-	n. 47/-	n. 47/-	n. 47/-	n. 47/-	n. 47/-	30/10	25/6	34/1	25/-
Western Australia to U. K./Continent (in bulk)	46/-	46/-	n. 46/-	n. 46/-	n. q.	n. q.	28/-	n. 24/9	34/9½	23/11
New South Wales to U. K./Continent (in bulk)	n. 46/-	n. 46/-	n. 46/6	n. 46/6	n. 46/6	* n. 46/6	29/11	24/6	34/11	23/11
Shipments of rice.									1936	1935
Rates in shillings per long ton:										
Saigon to Europe	43/-	44/-	45/-	45/9	45/9	48/6	30/9	26/3	26/3	* 22/7
Burma to U. K./Continent	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 24/-	* 21/8

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* Indicates that the product, or the ocean freight, was not quoted during part of the period under review — n. q. = *not quoted.* — n. = *nominal.* — *a*) Average prices for weeks commencing on Fridays indicated. — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) 24 Feb. 1936-18 Oct. 1937, "Extra special" quality; subsequently « Special » quality. — 3) Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. — 4) Rates for parcels by liners. — 5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 7) Eggs weighing 17 lb. p. 120: 17/10½. — 8) Eggs weighing 17 lb. p. 120: 16/9. — 9) Monthly average, for eggs weighing 17 lb. p. 120. — 10) Revised freight rates: first half of Nov.; n. 44/9.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U S DOLLAR 1)

NATIONAL CURRENCIES	Parity (1)	Actual Exchange Rates 17 Dec 1937	10 Dec 1937	3 Dec 1937	26 Nov 1937	19 Nov 1937	Percentage deviation from parity with U S dollar premium (+) or discount (—) 17 Dec 1937	10 Dec 1937	3 Dec 1937	26 Nov 1937	19 Nov 1937
Germany reichsmark	40 332	40 300	40 330	40 290	40 333	40 313	— 0 1	0 0	— 0 1	0 0	+ 0 2
Argentina paper peso	71 959			n 33 276	n 33 303	33 350			— 53 8	— 53 7	— 53 7
Belgium belga	2) 23 542	16 992	17 102	16 993	17 003	17 015	— 27 8	— 27 4	— 27 8	— 27 8	— 27 7
	3) 16 950						+ 0 2	+ 0 9	+ 0 3	+ 0 3	+ 0 4
Canada dollar	100 000	99 955	100 000	100 023	100 073	100 125	0 0	0 0	0 0	+ 0 1	+ 0 1
Denmark crown	45 374	22 300	22 325	22 278	22 289	22 325	— 50 9	— 50 8	— 50 9	— 50 9	— 50 8
Spain peseta	32 669	n 6 250	n 6 250	n 6 357	n 6 281	n 6 328	— 80 9	— 80 9	— 80 5	— 80 8	— 80 6
France franc 4)	6.633	3 396	3 400	3 392	3 394	3 397	— 48 8	— 48 7	— 48 9	— 48 8	— 48 8
Great Britain £ sterling 5)	8 2397	4 9968	5 0013	4 9912	4 9934	5 0022	— 39 4	— 39 3	— 39 4	— 39 4	— 39 3
Hungary pengö	29 612	n 19 990	n 19 900	n 19 840	n 19 825	n 19 840	— 32 8	— 32 8	— 33 0	— 33 1	— 33 0
India rupee	61 798			37 673	37 682	37 751			— 39 0	— 39 0	— 38 9
Italy lira	2) 8 911	5 262	5 262	5 261	5 262	5 262	— 40 9	— 40 9	— 41 0	— 40 9	— 40 9
	6) 5 263						0 0	0 0	0 0	0 0	0 0
Japan yen	84 396	29 110	29 130	29 062	29 072	29 133	— 65 5	— 65 5	— 65 6	— 65 6	— 65 5
Netherlands florin	68 057	55 610	55 645	55 542	55 587	55 467	— 18 3	— 18 2	— 18 4	— 18 3	— 18 5
Poland zloty	18 994	18 975	18 975	18 938	18 923	18 920	— 0 1	— 0 1	— 0 3	— 0 4	— 0 4
Rumania leu	1 013	n 0 745	n 0 745	n 0 733	n 0 731	n 0 732	— 26 5	— 26 5	— 27 6	— 27 8	— 27 7
Sweden crown	45 374	25 750	25 775	25 723	25 740	25 786	— 43 2	— 43 2	— 43 3	— 43 3	— 43 2
Switzerland franc	32.669	23 130	23 145	23 103	23 118	23 146	— 29 2	— 29 2	— 29 3	— 29 2	— 29 2
Czechoslovakia crown	2) 5 016	3 515	3 517	3 514	3 520	3 520	— 29 9	— 29 9	— 29 9	— 29 8	— 29 8
	7) 3 512						+ 0 1	0 1	+ 0 1	0 2	0 2

1) Parities and current rates are both expressed in U S cents per unit of the foreign currency (The £ sterling is expressed in dollars.) The dollar contains 0 8886706 grams of fine gold i e 40 9 % less than formerly — 2) Former parity — 3) New parity as from 31 March 1935 — 4) 1 Indochinese piastre = 10 francs the actual rates vary only slightly from this — 5) Quotations for the Egyptian pound are omitted its relationship with the £ sterling being fixed (97 ½ piastre = 1 £ sterling) — 6) New parity as from 5 Oct 1936 — 7) New parity as from 10 Oct 1936

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are given in the following pages Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced as originally received, without being formally united

As supplementary information the following comparative summary table is given

COUNTRIES	Percentage variations in the index numbers of prices of agricultural products	all products	agricultural products	all products
	November 1937 in comparison with October 1937		November 1936	
Germany (products sold by farmers)	0 0	—	+ 2 0	—
Germany (wholesale prices)	— 0 3	— 0 4	1 5	+ 1 1
England and Wales	+ 2 2	— 3 9	+ 6 2	+ 2 8
Argentina	— 6 7	—	+ 14 9	—
Canada	— 2 8	— 1 9	+ 8 9	+ 7 6
United States Bureau of Agric Economics	— 4 5	—	— 10 8	—
United States Bureau of Labor				
Finland				
Hungary	+ 2 5	+ 1 8	+ 10 8	+ 5 6
New Zealand	— 21 7	—	— 10 6	—
Netherlands	— 1 6	— 0 9	+ 16 7	+ 9 8
Poland	+ 0 2	0 0	+ 10 2	+ 4 1
Sweden	+ 1 5	—	+ 4 7	—
Yugoslavia vegetable production	— 0 8	— 0 6	+ 28 8	13 9
Yugoslavia animal production	+ 0 1		+ 2 6	
	October 1937 in comparison with September 1937		October 1936	
Belgium	+ 0 6	—	+ 5 7	—
Lithuania	0 0	0 0	+ 11 9	+ 10 6

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	Nov 1937	Oct 1937	Sept 1937	August 1937	July 1937	June 1937	Nov 1936	Nov 1935	Year	
Germany 2) (Statistisches Reichsamt) Average for corresponding months 1909-10/1913-14 = 100									1936-37 6)	1935-36 6)
Cereals	111	109	107	110	103	102	106	104	105	104
Edible potatoes	108	108	110	128	137	112	108	111	115	119
Plant products	110	108	108	115	117	103	107	105	107	107
Meat animals	92	92	93	94	95	97	92	96	94	96
Dairy and poultry products	100	100	104	108	113	117	99	99	106	106
Livestock and livestock products	94	94	96	99	101	104	94	97	98	99
Total agricultural products	100	100	100	103	104	104	98	100	100	101
Germany 3) (Statistisches Reichsamt) 1913 = 100									1936	1935
Foodstuffs of plant origin	114.6	114.4	114.5	116.9	118.2	115.7	111.1	111.3	114.1	113.4
Livestock	87.7	88.7	89.9	90.7	88.9	87.4	87.2	92.3	89.4	84.2
Livestock products	111.1	111.7	111.9	111.9	107.8	107.8	110.8	110.4	109.4	107.1
Feedingstuffs	105.1	104.6	104.4	104.6	107.0	108.3	104.7	104.8	107.5	104.6
Total agricultural products	104.7	105.0	105.4	106.4	105.7	104.6	103.2	104.7	104.9	102.2
Fertilizers	53.7	54.5	54.6	54.0	52.9	55.8	64.0	65.7	66.8	66.8
Agricultural dead stock	112.7	112.7	112.7	112.7	112.7	112.7	112.4	111.2	111.6	111.1
Finished manufactures ('Konsumguter ')	135.8	135.6	134.9	133.6	133.3	132.9	130.0	124.0	127.3	124.0
Wholesale products in general	105.5	105.9	106.2	106.7	106.4	106.1	104.4	103.1	104.1	101.8
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100										
Agricultural products 4)	137	134	142	136	134	134	129	119	126	123
Feedingstuffs	120	120	114	119	122	119	101	83	93	87
Fertilizers	92	92	92	92	91	91	88	88	89	88
Wholesale products in general 5)	113.9	118.5	121.2	122.5	124.2	122.7	110.8	101.5	104.4	99.5
Argentina (Banco Central de la Republica Argentina) 1926 = 100										
Cereals and linseed	106.3	112.8	103.8	101.6	103.2	97.7	83.8	68.3	82.6	67.2
Meat	103.3	104.4	103.9	97.3	95.7	92.6	91.8	89.6	91.0	84.0
Hides and skins	90.8	108.9	120.3	122.7	125.8	118.1	104.5	92.4	91.0	80.5
Wool	113.4	138.8	151.4	147.1	143.3	144.9	139.4	89.6	107.6	74.6
Dairy products	89.9	91.9	123.7	110.2	98.2	91.7	86.4	97.3	85.5	88.8
Forest products	99.1	98.8	98.8	100.2	100.2	98.7	95.9	96.7	96.3	92.2
Total agricultural products	104.4	111.9	108.9	106.3	107.0	102.4	90.9	76.0	86.6	72.1

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1) For an explanation of the method of calculating the index numbers reference should be made to the Institute's publication *Index numbers of Prices of Agricultural Products and other Price indices of interest to the farmer* (Rome 1930) and to the *Crop Report*, January 1932 pages 77 to 79 July 1932 page 502 March 1934 page 231 December 1934, page 996 — 2) Index numbers of products sold by farmers — 3) Index numbers of wholesale prices — 4) Revised index numbers due to the Wheat Act payments as from August 1932 and the Cattle Emergency Act payments as from September 1934 — 5) Calculated by the *Statist* reduced to base year 1913 = 100 — 6) Agricultural year, 1 July to 30 June

DESCRIPTION	Nov 1937	Oct 1937	Sept 1937	August 1937	July 1937	June 1937	Nov 1936	Nov 1935	Year 1936	Year 1935
Belgium (Belgische Boerenbond Boerenbond belge) Average of corresponding months 1909-14 = 100										
Field products		613	588	579	567	543	533	492	508	433
Livestock products		643	649	637	637	604	611	615	576	532
Total agricultural products		634	630	619	615	585	586	576	555	502
Rent		650	650	650	650	650	630	570	605	551
Agricultural wages		860	855	855	855	855	810	750	778	737
Fertilizers		455	451	452	447	433	443	421	427	394
Feeding stuffs		656	609	604	596	601	567	458	513	444
Total production expenses (included those not specified)		750	739	738	736	735	718	648	689	630
Canada (Dominion Bureau of Statistics Internal Trade Branch) 1926 = 100										
Field products (grain, etc.)	81.0	86.3	84.8	84.6	97.7	85.1	75.6	58.0	65.8	57.1
Livestock and livestock products	87.4	86.5	88.4	85.5	83.9	81.4	79.5	77.1	75.3	73.9
Total Canadian farm products	84.0	86.4	86.1	84.9	92.5	83.7	77.1	65.1	69.4	63.4
Fertilizers	74.5	74.5	74.5	74.5	74.5	74.5	74.2	75.8	74.5	75.8
Consumers goods (other than foodstuffs, beverages and tobacco)	78.5	78.9	79.0	79.1	79.0	78.5	75.8	75.4	75.5	75.7
Wholesale products in general	83.1	84.7	85.0	85.6	87.5	84.6	77.2	72.7	74.6	72.1
Irish Free State (Department of Industry and Commerce) Average 1911-1913 = 100										
Agricultural products in general			106.3	106.9	110.5	107.9	95.7	82.3	90.6	83.0
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100										
Cereals	85	93	111	119	139	139	127	90	108	103
Cotton and cottonseed	65	67	74	80	106	107	103	99	100	101
Fruits	88	99	121	123	145	157	97	83	100	91
Truck crops (market garden crops)	124	130	117	104	96	124	104	136	113	127
Meat animals	120	136	144	151	144	137	118	117	121	117
Dairy products	132	128	123	113	116	113	126	111	119	108
Chickens and eggs	135	127	119	109	107	95	141	140	115	117
Miscellaneous	112	113	115	128	113	119	133	103	122	97
Total agricultural products	107	112	118	123	125	124	120	108	114	108
Commodities purchased 1)	128	128	130	132	133	133	127	122	124	125
Agricultural wages 1)	—	126	—	—	123	—	2) 110	2) 102	106	95
United States (Bureau of Labor) 1926 = 100										
Cereals		77.0	91.9	92.0	105.2	105.7	102.9	77.9	88.1	82.4
Livestock and poultry		98.5	106.7	108.2	105.0	98.3	79.7	83.1	84.8	84.9
Other farm products		70.1	71.2	71.4	75.1	77.4	82.9	73.5	76.0	73.4
Total agricultural products		80.4	85.9	90.4	89.3	88.5	85.1	77.5	80.9	78.7
Agricultural implements		94.2	94.2	94.2	94.2	94.1	92.9	94.6	94.1	93.7
Fertilizer materials		72.5	71.8	71.7	71.3	70.5	68.0	67.5	65.9	66.3
Mixed fertilizers		74.9	74.8	74.8	74.2	72.3	69.6	67.6	68.3	70.6
Cattle feed		83.6	81.2	82.9	116.5	116.9	126.0	69.1	94.0	88.4
Non agricultural commodities		86.4	87.6	87.6	87.5	86.8	81.7	81.1	80.7	80.2
Wholesale products in general		85.4	87.4	87.5	87.9	87.2	82.4	80.6	80.8	80.0

1) 1910-1914 = 100 — 2) October

DESCRIPTION	Nov 1937	Oct 1937	Sept. 1937	August 1937	July 1937	June 1937	Nov. 1936	Nov. 1935	Year 1936	Year 1935
Finland (Central Bureau of Statistics) 1926 = 100										
Cereals	...	108	103	101	106	112	102	84	91	80
Potatoes	...	59	69	77	83	59	53	59	74	75
Fodder	...	82	70	67	67	70	65	55	64	62
Meat	...	80	86	89	87	86	75	69	80	75
Dairy products	...	100	95	92	85	81	83	92	82	83
Total agricultural products	..	91	89	88	87	86	81	78	79	76
Wholesale products in general	...	104	104	103	103	103	94	91	92	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	82	80	83	80	80	78	74	86	—	—
Wholesale products in general	94	93	96	94	94	94	89	95	—	—
Lithuania (Lietuvos Bankas) 1926 29 = 100										
Cereals	...	44	44	46	50	49	38	37	37	39
Cattle, fowls	...	51	51	51	50	50	44	30	40	30
Leather, hides, wool	...	61	61	60	59	59	59	43	50	38
Meat, dairy products and eggs	...	46	44	42	42	41	45	36	38	35
Total agricultural products	...	47	47	47	48	47	43	35	39	35
Wholesale products in general	...	52	52	52	52	52	48	45	45	45
New Zealand (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	128.9	122.4	119.1	113.6	113.9	112.6	107.4	111.6	105.6	91.
Meat	189.8	161.7	159.3	160.4	164.3	163.4	170.4	164.8	161.5	157.
Wool	165.8	175.3	175.3	175.3	169.7	180.9	119.0	93.3	111.5	82.2
Other pastoral products	152.1	165.0	151.0	167.2	151.6	153.1	131.4	118.3	123.6	96.7
All pastoral and dairy products	155.8	147.5	144.4	143.4	142.5	144.1	129.3	122.2	122.9	107.2
Field products	138.7	136.5	139.1	139.8	129.3	130.6	118.4	124.6	124.2	126.0
Total agricultural products	115.3	147.2	144.3	143.3	142.1	143.7	129.0	122.2	123.9	108.8
Norway (Kgl. Selskap for Norges Vel) Average 1909-14 = 100.									1936-37 1)	1935 3 1)
Cereals	175	173	172	175	173	172	152	148	154	144
Potatoes	182	167	171	203	227	188	122	138	132	165
Pork	124	127	129	126	123	108	120	121	110	109
Other meat	185	185	194	207	206	185	140	144	148	146
Dairy products	171	170	167	161	158	156	139	140	139	139
Eggs	157	159	142	120	109	98	144	135	113	102
Concentrated feedingstuffs	152	154	154	154	152	153	127	129	130	123
Maize	153	150	148	148	145	146	132	121	130	113
Fertilizers	99	93	89	89	90	90	87	83	87	82

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1) Agricultural year: 1 April-31 March.

SPECIFICATION	Nov 1937	Oct 1937	Sept 1937	August 1937	July 1937	June 1937	Nov 1936	Nov 1935	Year	
Netherlands (Bureau of Agriculture) Average 1924 25 to 1928 29 = 100									1936 37 2)	1935-36 2)
Plant products	60	61	63	65	64	61	55	50	58	50
Livestock products	65	65	65	66	66	63	53	50	57	51
Total agricultural products	63	64	65	66	66	62	54	50	57	51
Agricultural wages	68	68	68	68	68	68	68	69	68	69
Wholesale products in general 1)	76.3	77.0	76.9	77.6	77.5	76.3	69.5	62.7	3) 63.8	3) 61.5
Poland (Central Bureau of Statistics) 1928 = 100									1936	1935
Raw plant products	51.2	51.0	52.5	53.1	56.9	61.6	41.3	34.2	38.1	33.9
Meat animals	42.2	43.6	46.8	46.4	47.9	42.3	38.9	38.3	38.7	35.5
Dairy products and eggs	55.7	49.5	50.8	46.8	43.4	43.8	48.9	48.8	40.4	41.2
Products directly sold by farmers	49.1	48.3	50.3	49.7	51.4	51.9	41.9	38.3	38.7	35.8
Flour and groats	53.4	52.5	54.4	55.7	54.3	60.2	48.4	36.4	41.2	36.7
Meat and lard fat	46.6	48.8	52.3	50.7	50.2	46.7	43.4	45.7	44.3	40.8
Sugar alcohol beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	79.4	71.5	79.2
Products of agricultural industries	56.9	57.4	59.2	59.1	58.5	58.9	54.2	53.7	52.2	52.0
Total agricultural products	52.9	52.8	54.7	54.3	54.9	55.4	48.0	45.9	45.4	43.8
Commodities purchased 2)	65.8	66.0	66.4	66.3	66.5	66.1	65.0	66.4	64.6	66.3
Wholesale products in general 2)	58.4	58.4	59.6	59.6	60.0	60.3	56.1	54.4	54.0	53.0
Sweden Sveriges Allmänna Lantbrukssällskap) Average 1909 13 = 100										
Plant products	120	120	120	125	130	126	112	103	108	108
Dairy products	142	138	134	133	125	124	137	117	133	122
Meat animals	129	127	138	134	135	126	126	132	126	120
Livestock and livestock products	139	136	135	133	127	124	135	121	131	121
Total agricultural products	133	131	130	130	128	125	127	115	123	117
Feedingstuffs	141	141	140	139	134	133	138	133	133	125
Fertizers	93	93	93	94	93	94	93	—	95	95
Building materials	194	192	194	194	194	194	166	157	161	162
Machinery and implements	217	217	217	208	196	196	179	179	177	177
Sundries	129	130	130	131	130	131	117	111	112	109
Total commodities purchased	148	148	148	146	143	143	136	132	133	129
Agriculural wages	193	193	193	193	193	193	174	170	164	170
Yugoslavia (National Bank of the Kingdom of Yugoslavia) 1926 = 100										
Plant products	84.6	85.3	79.9	74.5	71.5	69.3	65.7	82.5	69.7	68.2
Livestock products	67.1	67.0	67.2	66.1	65.5	62.0	65.4	58.9	60.0	56.6
Industrial products	81.7	82.0	80.4	78.0	76.3	75.9	72.1	69.4	69.7	66.7
Wholesale products in general	79.5	80.0	78.1	75.3	73.7	72.1	69.8	71.2	68.4	65.9

1) Index numbers calculated by the Central Statistical Bureau of the Netherlands base 1926 1930 = 100 — 2) Agricultural year 1 July to 30 June — 3) Calendar year

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for November already available.

COUNTRIES PRODUCTS AND UNITS		Exports 1937	Exports 1936	Imports 1937	Imports 1936
ROMANIA		Oct	Oct	Oct	Oct
Wheat	1000 centals	3 574	3 310		
Rye	»	610	80		
Barley	» »	615	2 706		
Oats	» »	3	59		
INDO CHINA					
Wheat flour	1000 centals			33	35
Maize	» »	2 044	1 835	—	—
Rice	» »	2 014	2 902		
Coffee	1000 lb	44	26		
PALESTINE BR. M. T.					
Wheat	1000 centals	12	0	32	69
Wheat flour	»	1	0	45	69
Rye	» »	0	0	11	11
Barley	» »	0	0	11	88
Maize	» »	73	1	3	34
Rice	» »	8	4	14	52
Linseed	» »	0	0	0	2
Cotton	» »	0	0	1	1
Wool	1000 lb	15	9	11	0
Butter	» »	0	0	399	538
Cheese	» »	0	0	194	273
Cacao	» »	—		73	24
Tea	» »	—	—	86	110
Coffee	» »	—	—	359	366
FRENCH MOROCCO					
Wheat	1000 centals	238	25	36	248
Wheat flour	» »	0	2	0	0
Rice	» »	0	0	0	0
Barley	» »	0	884	4	0
Oats	» »	19	16	2	0
Maize	» »	0	258	0	0
Rice	» »	—	—	55	24
Linseed	» »	26	31	—	
Cotton	» »	0	0	0	0
Wool	1000 lb	836	324	2	11
Butter	» »		—	146	187
Cheese	» »		—	362	289
Cacao	» »	—	—	13	22
Tea	» »	11	0	1 382	2 813
Coffee	» »	—	—	944	653
UNION OF SOUTH AFRICA					
Maize	1000 centals	3 545	0		
Wool a)	1000 lb	15 761	17 871		
Wool b)	» »	443	359		
GERMANY		Nov	Nov	Nov	Nov
Wheat	1000 centals			1 023	97
Wheat flour	» »			104	41
Rye	» »			81	0
Barley	» »			585	3
Oats	» »			88	45
Butter	1000 lb			17 051	14 753
Cheese	»			20 040	5 309

COUNTRIES PRODUCTS AND UNITS		Exports 1937	Exports 1936	Imports 1937	Imports 1936
NETHERLANDS		Nov	Nov	Nov	Nov
Wheat	1000 centals	1	32	1 207	
Wheat flour	» »	1	71	102	
Rye	» »	97	216	115	
Barley	» »	107	63	402	
Oats	» »	83	339	32	
Maize	» »	0	0	2 118	1
Rice	» »	172	256	284	
Linseed	» »	4	4	487	
Cotton	» »	0	4	132	
Wool a)	1000 lb	201	683	225	
Wool b)	» »	9	159	192	[illegible]
Butter	» »	6 087	8 375	40	
Cheese	» »	11 572	11 067	97	
Cacao	» »	602	617	9 852	10
Tea	» »	15	9	2 127	2 1
Coffee	» »	353	106	20 362	12
UNITED KINGDOM					
Wheat	1000 centals	93	41	9 220	10 4
Wheat flour	» »	194	229	808	6
Barley	» »			3 104	2,
Oats	» »			159	2
Maize	» »	237	157	8 553	8,6
Rice	» »	4	15	123	2
Linseed	» »			693	4
Cotton	» »	41	28	2 199	1 5
Wool	1000 lb	13 986	20 018	45 922	65 7
Butter	» »	1 045	505	71 412	79 8
Cheese	» »	694	478	26 570	28 5
Cacao	» »	7 394	1 235	9 676	8 9
Tea	» »	6 984	6 506	68 665	51 0
Coffee	» »	518	1 713	2 015	3 10
SWITZERLAND					
Wheat	1000 centals	0	0	687	9
Rye	» »	0	0	13	[illegible]
Barley	» »	0	0	368	3
Oats	» »	0	0	230	3
Maize	» »	0	0	156	3
Rice	» »	0	0	60	
Cotton	» »	0	0	106	92
Wool	1000 lb	4	24	580	1 808
Butter	» »	0	37	7	375
Cheese	» »	701	556	229	344
Cacao	» »	0	20	311	1 124
Tea	» »	2	44	168	179
Coffee	» »	0	0	1 986	1 424
BURMA					
Wheat	1000 centals	1	—	7	—
Wheat flour	» »	0	—	53	—
Rice	» »	3 347	—	2	—
Cotton	» »	70	—	0	—
NEW ZEALAND					
Wool a)	1000 lb	3 115	4 422		
Wool b)	» »	1 008	2 767		
Butter	» »	33 396	36 125	—	—
Cheese	» »	19 656	18 444		

a) Wool greasy — *b)* Wool scoured

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27-XII-1937.

AGRICULTURAL SCIENCE AND PRACTICE

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

PRESENT KNOWLEDGE REGARDING THE STORAGE OF FRUITS AND VEGETABLES IN CARBON DIOXIDE GAS

The storage of fruits in CO_2 gas is a relatively recent practice which tends to be more and more extensively used by important fruit producing and exporting countries, especially by the United States, Australia and South Africa. It is not suggested that this practice supersedes the universally known process of storage by refrigeration, which it only completes, but in view of the advantages attributed to this process by many technicians, an objective study of this system in order to ascertain its actual advantages, the defects ascribed to same by certain authorites, and finally the value of its utilisation should be of some interest The present article deals entirely with this aspect.

Description of the gas storage method.

This method does not eliminate the necessity of refrigeration, as the temperature actually required is only a few degrees higher than that adopted in the ordinary process of refrigeration; but it was ascertained that by replacing part of the oxygen contained in the atmosphere by an equivalent quantity of carbon dioxide, at the same time maintaining a low temperature, considerably better results were obtained as regards the delay in the life cycle of the fruit than were possible with the ordinary system of refrigeration. (1). As is well known, a natural chemical action takes place in the interior of the fruit during the course of its normal life, which action results in the formation of CO_2 and the production of heat. In a relatively brief period of its normal life, the respiration of the fruit increases by approximately 200 per cent., reducing its life by half when stored in the cold storage chmbers (2). If the respiratory action is hindered by a partial suffocation, owing to the low oxygen content of the surrounding atmosphere, any increase in the respiratory action is no longer possible, and in this way the life of the fruit is prolonged. This principle is opposed to those formerly held and even to-day in some instances is considered correct; previous to recent scienific research studies, it was thought that the nearer the composition of the atmosphere in the warehouses to pure air, the better the conditions for preserving the fruit, consequently, the wide spread belief in the ventilation system.

It would be quite outside the scope of this article to give a detailed history of the scientific research work which resulted in the present day knowledge of this subject The system of installation will now be taken into consideration

Arrangement of the cold storage depots.

Kidd, F and West, E (1) recommend dividing the large-sized storage depots into 2 or more separate chambers, in order to ensure a rapid loading and sealing, to prevent mixing the different varieties of fruits, and to facilitate unloading. the size of each chamber will depend on the rapidity with which it can be filled by the producer If, for example, apples are to be stored, the most economic quantity for the producer on a large scale would be 50 tons, for the average grower, approximately 30 tons. In order to ensure the air-tightness of the gas chambers, the best arrangement would consist in lining the ceiling and the walls with a sheet of galvanized or plated steel of approximately 26 s w. g. These metal sheets should be nailed or screwed into place with nuts on wooden foundations so as to project about 5 cm. in order to ensure air-tightness between the two adjacent sheets. The joints may be made air-tight by covering with vaseline or some other suitable substance, before tightening up Various preparations of a sufficient plasticity and impermeability to CO are now on the market It is also customary to cover the joints with vaseline at the beginning of each season, however, it has not been proved that this practice is actually effective. Besides being galvanised, the metal sheets are protected both externally and internally by a coat of non-corrosive oil The floors of the storage depot are usually concreted and the surface is rendered air-tight by a layer of vaseline, or preferably by any other substance affording a smooth, firm and air-tight surface, facilitating a thorough cleaning at the beginning of each season. The doors should be the same height as the chamber in order to facilitate loading; these doors are covered on both sides by metal sheeting and the air-tightness of the joints is assured in the manner mentioned above The gas tightness of the chamber obtained by this method of construction depends considerably on the care with which the work has been carried out However, these chambers are never completely air-tight; even in the best established constructions, a leakage of about 6 per cent. of the cubage per day always occurs. Losses of this kind are unimportant, their only effect, practically negligible, is to slightly increase the period necessary to obtain the required CO concentration

Strong winds may cause considerable waste in gas; therefore, the establishment of these installations in sheltered areas is recommended

Control of oxygen and CO_2

The atmosphere to be obtained should be controlled through the oxygen and CO_2; as is well known, CO_2 is produced from oxygen, volume for volume, as a result of the respiratory activity of the fruits The rapidity with which the CO_2 is produced depends on the temperature; apples, for example, produce twice as much CO_2 at 60° F. than at 40° F. Consequently, the higher the temperature of the fruit, the more rapid will be the accumulation of CO_2 in the chambers. The rate of accumulation also depends, though to a lesser degree, on the nature of the fruit, variety, maturity at time of harvesting, and the quantity of fruit stored.

The concentrations of oxygen and CO_2 required for some varieties of fruits may be easily obtained by allowing the fruits to replace the oxygen of the air by CO_2 and controlling the the concentration of CO_2 by changing the ventilation by fresh air. As the sum of the concentrations of oxygen and CO_2 must equal 21 per cent. (that is, the percentage of oxygen in the atmosphere), it is only necessary to increase the concentration of CO_2 in order to control the atmosphere in the chambers In other words, by this method it is not possible to control the oxygen and CO_2 separately.

In a depot with a storage capacity of 50 tons, ventilation may be ensured by a simple panel in the door adjustable to 30 cm on one side. If the refrigeration of the chambers is effected by means of the forced circulation of air through cold pipes, ventilation may be obtained by using a pipe which absorbs the air outside the chambers and converging on to the suction part of the ventilator; in this way, fresh air enters continuously in the chamber, well-mixed with the atmosphere in same, and is cooled before coming in contact with the fruit.

Independent control of the oxygen and CO_2.

It was seen from the above-described process that the control of CO. could not be obtained unless the total concentration of $CO_2 + O_2$ did not exceed 21 per cent. If other concentrations are required, for example of 5 per cent oxygen plus 5 per cent. CO_2, it is necessary to adopt a system for absorbing the excess CO_2 gas, in order to reduce the quantity of oxygen contained in 100 m^3 of air, from 21 m^3 to 5 m^3 the fruits must liberate 16 m^3 of CO_2; if out of these 16 m^3 of CO_2, only 5 are required, the excess to be removed will be 11. It is not possible to effect this reduction through ventilation, as this system, would modify the proportion of oxygen, required to be 5 per cent. The absorption of the excess CO_2 must be effected by chemical means; this absorption may be controlled either by regulating the circulation of the atmosphere in the chamber over a large quantity of absorbant material, or by introducing into the chamber limited quantities of absorbant at determined intervals. The absorbant material adopted is generally caustic soda.

Moisture content of the atmosphere.

Under commercial conditions, the moisture content of the atmosphere in the storage depot varies between 85 and 98 per cent. of the saturation; this is not high enough to cause condensation on the fruit or the growth of moulds. On the other hand, it is sufficiently high to prevent the drying up of the fruits through withering during the course of a prolonged period of storage. Of far greater importance is the relative humidity of the atmosphere in close proximity to the fruits; by this means, the decrease in the water content of the fruit may be ascertained. The water lost by the fruits condenses along the walls, on the refrigerator pipes, and on the wooden packing cases containing the fruit As will be indicated further on in this article, in the latter case condensation can be prevented.

Maintenance of the required temperature.

The refrigerating apparatus must be sufficiently effective to cause the temperature of the fruits to fall from 18° C to 4° C within 4 or 5 days, when the external temperature is 21° C. The cooling of the atmosphere in the chambers depends on their insulation; with a good insulation, a smaller and less expensive freezing apparatus may be utilised during a warm autumn. On the other hand, little refrigeration is required during the greater part of the storage period, as this generally covers the end of autumn, the winter and the beginning of spring. In practice, it is found that if the walls of the building are thick, only the ceiling need be insulated. In the establishments of up-to-date structure, the walls are double and the intervening space filled with cork In some depots, the cooling pipes are fixed to the ceiling with gutters attached in order to collect the water from condensation; in others, the pipes are arranged in a kind of circuit in the centre of the chamber; the circulation of the air through the pipes is ensured by means of a ventilator. The advantage of this latter system lies in assuring a more uniform and rapid cooling of the fruit

To be complete, the equipment of the storage depot must also include thermometers at least three in number, placed in different parts of the chamber, though always in direct contact with the fruit, as it is the temperature of the fruit and not that of the air which must be controlled – and a gas indicator; samples of the atmosphere for analysis may be taken from any part of the chamber, excepting in the proximity of the ventilator. The instrument most commonly used for determining the CO_2 content of the atmosphere is the katharometer

Requirements necessary to obtain optimum storage conditions.

To deal with this question, an example will be taken which can be applied to all fruits with such slight modifications as are found to be necessary in practice.

Apples to be stored in an atmosphere of CO_2 must be clean and sound, free from worm-holes, scab, etc They must be handled as carefully as possible in order to prevent them being damaged in any way. Fruits harvested at a high temperature must be left in the open air for a whole night and placed in the storage depot as quickly as possible early the following morning; in this manner, the refrigeration of the fruits is effected more rapidly. Experiments have confirmed the belief so wide-spread among fruit-growers, that good storage depends considerably on the degree of maturity of the fruits when harvested. Although fruits which are collected when unripe can be kept for some considerable time, they have a tendency to shrivel up and seldom attain a perfect colouring, texture and flavour. On the other hand, if the fruits are harvested, when they have acquired their characteristic odour, the duration of their life period, even when stored in CO_2 will be relatively short. Harvesting should be made at an intermediate stage, that is when the fruits can be easily detached from the branch. The interval between harvesting and warehousing is of considerable importance in this type of storage. To obtain ideal conditions, this interval should not last longer than two days; in any case this period should not exceed five days. The experiments carried out at the East Malling Research Station in 1935 (3) have confirmed these practical assertions by proving on the one hand that the longer the duration of this period the greater the percentage loss, and also that this loss is the same for both large and small-sized fruits.

After a period of three to four months storage, the chambers may be opened once a week without risk as long as a correct temperature is maintained. The temporary loss of CO_2 caused by opening the warehouse has no adverse effect on the fruit remaining in storage.

As already noted, it was seen that the relative humidity of the atmosphere in the close proximity of the fruit was one of the most important conditions for good storage. The fruit is arranged in wooden cases, inside the warehouse; these packing cases may absorb a considerable quantity of moisture at the expense of the fruits; an excellent precaution would be to moisten the wood of these cases and store them in a damp place before use.

Advantages of this method.

The following advantages are obtained in adopting this method:

(1) In an atmosphere composed of more CO_2 and less oxygen than normal air, the life of the fruit is considerably prolonged;

(2) the fruits maintain their green colour and firmness to a remarkable degree;

(3) the duration of the life of the fruits, after leaving the storage depot is prolonged; this is a very important advantage for both distributor and consumer (4);

(4) the loss in weight is found to be less with this system than with refrigeration at ordinary temperature;

(5) the breakdown due to excessive refrigeration is avoided as the temperatures used are relatively not very low (5);

(6) *Tortrix* larvae are killed in an atmosphere of CO_2 and consequently there is less possibility of the fruits being attacked by cryptogamic diseases.

In consequence of the losses caused through the rotting of the fruits during transport due to various fungi, the U. S. A. Department of Agriculture (6) carried out numerous experiments on storage in an atmosphere of CO_2 and such excellent results were obtained that this department considers that the use of CO_2 together with moderate refrigeration will most probably become a common practice, especially in the transport of fruit by sea. Research workers engaged in the study of the diseases occurring during transports report that the most intense development took place during the first 24 hours following loading, and that a preliminary chilling by any method would check considerably an early growth.

The interest caused by this new system, induced many research workers to study the effects of CO_2 on the principal chemical components of the fruit. The possible effect of CO_2 on acidity was suggested by SANDO (7) as early as 1920, and he noted that tomatoes collected when green and left to ripen without ventilation showed, on analysis a very high acid content. He suggested that the complete transformation of the carbon hydrates to CO_2 was the cause of this accumulation of acid.

In 1924, MAGNESS, and DIEHL (8) in the United States also proved, by treating different varieties of apples with varying concentrations of CO_2 over a period of 10 days, that the total acidity of the fruits decreased more rapidly than when the atmosphere contained a very high percentage of CO_2.

In 1933, KIDD and WEST (9) arrived at similar conclusions, that the increase in CO_2 concentration accelerated the loss in acidity, and that, on the other hand, a decrease in the oxygen concentration had only a slight effect on the acidity.

E. V. MILLER and O. J. DOWS, of the Bureau of Plant Industry of the U. S. A. Department of Agriculture have recently completed their experiments on the behaviour of different fruits and vegetables during storage in an atmosphere of CO_2 (10); they obtained the following results:

Sweet corn stored for 24 hours in an atmosphere containing from 37 to 50 per cent. of CO_2 retained twice as much sugar as the control samples. The loss in sucrose was delayed in carrots when stored in chambers containing 40 per cent. of CO_2. The effect was considerably more pronounced at 15° C and 25° C than at 5° C. CO_2 has no effect on the acidity of cherries and peaches in the course of storage for 24 and 48 hours respectively. "Earliana" and "Marglobe" tomatoes treated during 6 days with 50 per cent. CO_2 showed a decrease in acidity at 20° C and a loss in hydrogen ion concentration at 10° and 20° C. The treatment of carrots with 45 per cent. CO_2 over a period of 11 days at 20° C, 14 days at 10° C, and 15° days et 0° C, did not cause any reduction in carotene content. CO_2 had no effect on the transformation of carbon hydrates in peas and maize, but, some days after treatment, these products were found to contain a higher percentage of sugar than the control samples. The authors also noted that too high a concentration of CO_2 may retard the pigment formation in some varieties of tomatoes but that the variation in acidity is similar to that of the control fruits.

The use of CO_2 would be advantageous in delaying the growth of certain cryptogamic diseases, as *Sclerotinia fructicola*, this at least was the result obtained from experiments made in 1934 by N. C. THORNTON, of the Boyce Thomson Institute (11). Cultures of *Sclerotinia fructicola* on potato dextrose, produced at a temperature varying from 2° C to 28° C were exposed to various concentrations of CO_2 in the presence of 20 per cent oxygen The effect of CO_2 increased the pH value of the living fungi, which passed from 5, 6 to 7 2 In consequence of the increase in alkalinity being less favourable to the growth of the fungus, the author considers that the delay caused in development by CO_2 results from the increase in the alkalinity inside the fungus The same author carrying out experiments on potatoes showed that CO_2 had the effect of considerably increasing the catalase activity, the pH value and the saccharose content, E V MILLER and C BROOKS, of the Bureau of Plant Industry, of the U S A Department of Agriculture, experimenting on peaches, in 1932, found that with a CO_2 concentration of 37 to 47 per cent, at 15° to 20° C, the fruits took on an over-ripe flavour CO had no effect on their content in carbohydrates, the acid hydrolysable polysaccharides remained practically constant

Disadvantages of storage in an atmosphere of CO_2

Owing to the considerable variation in the reaction of different products in the presence of CO it would be unadvisable to extent this practice to other products whose behaviour in an atmosphere of CO_2 is not yet known Under certain concentration CO_2 may have hidden effects decidedly unfavourable on the fruit, effects which are only noted by the consumer The degree at which the concentration of CO ceases to be favourable and begins to have an adverse effect depends on the species, variety, the condition of the fruit and also the temperature and concentration of O in the air Contrary to the results obtained by N C THORNTON on the development of *Sclerotinia fructicola* other authors, KIDD F and WEST C found that the germination and growth of the fungi causing rotting were influenced to a remarkable degree by CO and O at different concentrations and temperatures

Practically all the research workers who have studied the question of storage in an atmosphere of CO drew attention to the unadvisability of storing together more than one species of fruit or even different varieties of the same fruit or even fruit of the same variety at different stages of maturity, owing to the effects involved through the volatile products liberated by the fruits

In consequence of the ventilation in this system of storage being limited the volatile matter produced by the fruits accumulates in the atmosphere among these volatile substances one of the most important is ethylene the production of which especially in the case of unripe apples, has been proved by many research workers one of the easiest methods was to transform it into ethylene di-bromide through absorption by bromine (12) This gas accelerates the colouring and ripening processes of fruits and vegetables lowers the acidity percentage and hinders the development of rotting It is possible that the formation of this gas depends on the O_2 content of the atmosphere and that it is considerably reduced in the absence of this gas The effect of ethylene liberated by the apples would be to accelerate the ripening process of the unripe fruits and vegetables, even pertaining to different species this

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would be a drawback to the method the object of which is to prolong the life of the fruit in order to store it for a longer period. However, it is necessary to carry out still further detailed studies, as other research workers experimenting on this subject appear to have arrived at contrary conclusions; in fact, ELMER (13), studying the special case of the potato, proved that the growth of the tubers was hindered by the gaseous emanations produced by the mesocarp and the endocarp of sound, ripe apples; the formation of shoots was practically eliminated and the total sugar content of tubers had increased. According to J. T. MINSTER (14) the fact of the formation of shoots being checked would be due to the paralysing influence of the malic acid liberated by the apples. Mr. Maurice COPISAROU of the Manchester Research Laboratory (15) arrived at similar conclusions: malic acid arrests the ripening and germination processes as well as any parasitical activity in many fruits and vegetables including potatoes. But, furthermore, it has been seen that the ethylene liberated by the fruits would have an accelerating effect, while malic acid would have a contrary effect. Taking into consideration, the chemical and physiological similarity existing between malic acid and the natural moderating factor, the replacement at maturity of the moderating factor by ethylene which is an accelerator, the constitutional relationship between malic acid and the components of acid fruits as well as its possible decomposition into ethylene, the author considers that the natural moderating factor found in the unripe fruit is malic acid and that the transformation of this moderating factor to an accelerating agent at maturity is represented by the decomposition of the malic acid into ethylene. This concept has a direct bearing on the problem of the storage of fruits and vegetables in an atmosphere of CO_2; it is essential that ripe fruits should not be mixed with unripe fruits pertaining to the same or to different species. Another disadvantage reported by many research workers is that, in excessive quantities, the gaseous emanations of the fruits may cause superficial burns and spots. However, this may be avoided by wrapping the fruits in paper impregnated with an odourless mineral oil.

Application of the process to different fruits and vegetables.

The temperatures and percentages of CO_2 given here are only guaranteed valid for the examples cited; in fact, the optimum value of these two quantities varies according to the different products required to be stored. These variations exist not only in different species, but also in different varieties belonging to the same species, and in more or less ripe fruits pertaining to the same variety. As an example, are given the most suitable temperatures and CO_2 concentrations for the storage of the following fruits and vegetables.

In respect of apples, the longest and best storage is obtained with a temperature of 4.4° C, 5 per cent. of CO_2 and 2.5 per cent. of O_2. Fruits stored under these conditions will develop their characteristic flavour after a brief period of exposure to the air at ordinary temperature. The results of the experiments carried out by F. KIDD and C. WEST (16) on the storage in gaseous atmosphere of the Cox's Orange Pippin variety of apples are given in the following table:

Flavour of Cox's orange Pippin apples after 4 months storage in an atmosphere of CO_2, followed by 4 days storage in normal air at a temperature of 21° C

Storage conditions			Condition of the fruits as regards flavour, maturity, etc
Temperature in degrees C	O_2 %	CO_2 %	
4	2.5	5	Good flavour, unripe, normal, crisp, sweet
4	5.0	5	Good flavour, more or less in the unripe stage, normal sweet
4	10.0	5	Excellent flavour, ripe, crisp sweet
4	15.0	5	Good flavour, ripe normal sweet
4	2.5	10	Good flavour, unripe, normal, crisp sweet
4	5.0	10	Fairly good flavour, nearing the ripening stage, juicy, sweet
4	10.0	10	Good flavour unripe normal sweet
4	2.5	15	More or less abnormal flavour, un ripe
4	5.0	15	Abnormal flavour, unripe
4	21.0	0 (air)	Over-ripe
1	21.0	0 (air)	Flavour fairly good, ripe rather soft

The loss in weight normally noted is appreciable, but, however, is less than that which occurs in storage by refrigeration only, this loss may approximate 5 per cent. after several months of storage.

In respect of peaches, it is interesting to note that experiments carried out in Australia have shown that the life of the fruits may be prolonged by five to ten weeks by this process.

In the storage of pears, KIDD and WEST have obtained the best results, and the longest period of storage by keeping the fruits at a temperature of 1° C in an atmosphere containg 2.5 per cent. of O and 5 per cent. of CO_2 or 5 per cent. of O and 5 per cent. or CO_2. Storage in a gaseous atmosphere at 5° C is not satisfactory. C. W WARDLOW (17) mentions the experiments carried out by BROOK and other research workers on the influence of CO_2 on beans. The object of these experiments was to increase resistance to cryptogamic diseases during the period of cooling previous to storage. After two days' treatment with CO_2 concentrations of 20, 30 and 40 per cent. according to the different lots, reduced to 10, 15 and 20 per cent towards the end of the experiment, the author ascertained that the flavour remained unchanged, and that of the fungi attacking the beans during the storage period, the development of two was checked and the other two were not affected. BROOK and BRATTEY (18) proved that by treating asparagus with 25 to 30 per cent. of CO for 24 hours, at a temperature of 15.5 to 21° C, the appearance, flavour and the keeping qualities of the products were superior to those of asparagus stored according to the refrigeration method only. However, at higher concentrations (40 per cent. of CO_2), the flavour became open to criticism, CO_2 was also advantageous in checking the growth of fungi causing rotting.

C. A. Eanes (19) in "Scientific Agriculture" (1933) gives a summary of the experiments made in Canada; the author points out the considerable difficulty incurred in the storage of strawberries and raspberries in an atmosphere of CO_2, in preventing the growth of moulds by means of high concentrations of nitrogen or CO_2 without affecting the flavour or causing a bitter taste. In the case of raspberries, the best results were obtained by storing the fruits at 0° C in an atmosphere containing 5 per cent. of CO_2.

In the experiments made by J. Barker in England (20) on the storage of new potatoes, carrots and sparagus, the following results obtained with new potatoes merit further mention:

refrigeration storage only: the temperature should not be lower than 4.4° C if they are not to turn sweet;

storage in an atmosphere of CO_2*:* the advantage of this system lies in the prolonging of the period during which the skin remains loose and easily removable; however, this advantage is considerably counterbalanced by their becoming sweet and losing their normal texture. The most suitable conditious for storage appear to be 5 to 10 per cent. of CO_2 with 15 to 10 per cent. of O_2 at 7°C. Further experiments are necessary in order to ascertain whether even under these conditions storage is better than with normal air.

N. C. Thornton (11) studied the chemical changes which took place in the potato tubers after exposure to the action of CO_2. He found that an increase in rate of respiration, pH value, saccharose, and in catalase activity occurs

According to E. V. Miller and C. Brooks (21) the effect of CO_2 in the storage of peas is to maintain a higher percentage of total sugars and a lower proportion of polysaccharides at all temperatures, with the exception of very low temperatures. The authors found that CO_2 had apparently no effect on the amount of carbohydrates in peaches and cherries; the percentage of sugars and acid-hydrolysable polysaccharides remained practically constant. However, at concentrations of 35 to 47 per cent. and temperatures of 15 to 20° C, CO_2 caused a characteristic over-ripe flavour.

The experiments made by G. B. Tindale (22) and other research workers have shown that the accumulation of CO_2 would be harmful; a concentration of 15 per cent. CO_2 had a decidedly unfavourable effect; those of 10 and 5 per cent. reduced the duration of the storage period by one and two weeks respectively. The influence or oxygen and CO_2 on the respiration of tomatoes was also brought into evidence by F. G. Gustavson (23). When the tension of O_2 decreases and that of CO_2 increases, at a certain degree the respiratory activity diminishes. The rate of diminution of this activity depends on the degree of ripeness of the fruit. The storage of tomatoes for a brief period in an atmosphere with a low O_2 and high CO_2 content does not appear to damage the fruits and retards maturation

The process of storage in an atmosphere of CO_2 has been attempted for many tropical fruits. C. Brook (24) applied this process to grape fruits, oranges, bananas, and to papaws. The use of CO_2 was found to be suitable for oranges, grape fruits and figs; exposure for two days in an atmosphere containing 20 to 25 per cent. CO_2 at a temperature of 4.4° C to 7° C was found to be injurious to green bananas; however, this treatment had no detrimental effect on ripe bananas and avocado pears.

Experiments on the banana were resumed by a considerable number of research workers and principally by LEVIE, E. L. at Batavia (25). This authority endeavoured to delay the maturation of bananas for storage, and only storage in an gaseous atmosphere has given promising results. Ripening was retarded by 9 days in the case of fruits kept in an atmosphere containing 12 - 17 per cent. CO_2 at a temperature of 27.5° C.

F. SCURTI ad E. ZAVANJU (2) have recently completed their studies on the storage of bananas in an atmosphere of CO_2 and have come to the following conclusions:

Carbon dioxide cannot, any more than oxygen or nitrogen employed in the pure state, prolong the life of the banana. However, mixtures composed of 95 per cent. nitrogen, 2.5 per cent. oxygen and 2.5 per cent. carbon dioxide may appreciably slow down the bio-chemical processes of maturation, without bringing about any changes. However, it is essential that the temperature should be maintained at approximately 18° C. if this temperature is raised to 24° C, or over, the gaseous mixture becomes unsuitable for the storage of unripe bananas. Mixtures composed of nitrogen, oxygen and carbon dioxide, and comprising 5 per cent. oxygen and 5 per cent. carbon dioxide as also those mixtures containing 10 per cent. oxygen and 10 per cent. carbon dioxide are as efficacious as the previously mentioned compositions, on condition that the temperature is maintained at 18° C.

There is perhaps some possibility, therefore, of consignments being transported without necessitating the use of special apparatus of refrigeration and at relatively high temperatures

In 1935, C. W. WARDLOW and E. R. LEONARD (26) at the Imperial College of Agriculture, Trinidad, carried out experiments on the application of this system to the storage of avocado pears. These studies showed that by the use of CO , the ripening of the fruits was definitely retarded. The degree of tolerance to this treatment varies according to the variety. In the varieties unsuited for storage by this system, damage is effected both inside and outside the fruit, without the intervention of micro-organisms. In other varieties, although no physiological disease may be apparent, the fruits are consequently found to be much more susceptible to the attack of pathogenic agents. Other varieties, on the contrary, tolerate these storage conditions exceedingly well. However, it may be affirmed that very high concentrations of CO_2 prevent the pulp from softening, so that it remains hard even after having been removed from storage.

Conclusion.

From the above description and the numerous examples given, the advantages and disadvantages of this system of storage may be estimated. The results obtained by different research workers are often contradictory; this is chiefly due to the conditions under which the experiments are carried out which vary considerably from one country to another; on the other hand, one fact has been ascertained that all fruits do not react to CO_2 in the same manner; the principal factors affecting their behaviour in an atmosphere of CO_2 are the concentration in CO_2 and O_2, the temperature, species of the fruit, variety, size of the fruit, degree of ripeness, the prevalence of different diseases existing in the region of origin. These are the factors which should be taken into account before adopting this system of storage as in any given country no definite reliance can be placed on the satisfactory results obtained elsewhere, using this method, with certain varieties of fruits of vegetables. The best mode of operation would consist in always making preliminary trials before employing this process on a commercial scale. This has been the plan adopted in many large fruit-growing countries where CO_2 is successfully employed, especially for products which do not easily support too low a temperature.

This method, for example, appears to be the most suitable for the storage of certain tropical fruits such as pineapples which do not support low temperatures and rapidly deteriorate on being removed from the cold storage chambers. This question, as is the case for many other fruits requires further detailed study. Another point, which should be more fully studied in order to complete the data on the storage of different fruits in an atmosphere of CO_2, is the determination of the actual conditions existing inside the fruit during their storage period in this gas at varying concentrations.

C. W. WARDLOW and E. R. LEONARD (23) studying the ripening process of different tropical fruits and especially the papaw, noted that in the final stages of maturation, the quantity of oxygen contained in the cavity of the fruit and, by deduction, in the tissues, was very small. In other words, the final stages of decay are characterised by the transition from aerobic respiration to anaerobic respiration. The influence that the concentration of the internal gases has on the destruction of the tissues by cryptogamic organisms gives rise to some very important problems. In this way, it was found that the destructive activity of antrachnos, a definite pathogenic disease, was retarded until the O_2 concentration inside the fruit fell to 12 per cent. and less. On the other hand, the frequency of definite saprophyte fungi does not become apparent until the tissues virtually come under anaerobic conditions. It is a question, therefore, of ascertaining to what extent the different aspects of the loss in resistance to cryptogamic diseases are due to the decrease in O_2 content or to the depressing action of strong CO_2 concentrations. It is to be hoped that further studies will materially increase the information already available on the fundamental processes occurring during the storage of fruits in an atmosphere of CO_2.

D. KALTENBACH.

Publications consulted:—

1) F KIDD and C WEST, Gas storage of apples. — *The Fruit World and Market Grower,* May 1936, N. 5

2) H. V. PASTEUR, Pre-refrigerazione e uso di biossido di carbonio per la conservazione della frutta nel Sud Africa. — *L'Ortofrutticoltura,* n. 2 febbraio 1934.

3) A. C. PAINTER, Some notes on one year's experience with gas storage. — *Ann. Rep. East Malling Res. Sta. for* 1935.

4) KIDD F. and C. WEST, The gas storage of fruit: a warning note. — *Sci. Hort.* 1936-4.

5) KIDD F. and C. WEST, The refrigerated gas storage of apples. — *Food investigation Leafl.* 9, 1935.

6) Carbon dioxide for fruit transport. — *The fruit world of Australasia*, August, 1934.

7) SANDO C. E., The process of ripening in the tomato, considered especially from the commercial standpoint — *U. S Dept. Agr. Bull.* 859, 1920.

8) MAGNESS S. R., and DIEHL H C , Physiological studies on apples in storage. — *Jour. Agr. Research*, No. 27, 1924.

9) KIDD F , WEST C , Gas storage of fruit. — *Jour. Pomol. and Hort. Sci.* 11, 1933.

10) E. V. MILLER and O. J. DOWS, Effect of carbon dioxide on the carbohydrates and acidity of fruits and vegetables in storage. — *Journal of Agricultural Research*, July 1936, No. 1.

11) N. C. THORNTON, Carbon dioxide storage. — *Contrib. Boyce Thomson Institute* 6 (1934).

12) R. GANE, Identification of ethylene among the volatile product of ripe apples. — *Dept. Sci. and Indus Res Food Invest. Br Rpt*, 1934.

13) ELMER O. H., Growth inhibition in the potato caused by a gas emanating from apples — *J Agric. Res* 1936, No. 52.

14) MINSTER J T , The effect of apples on potato sprouting. — *Food Manuf* 1936, No. 11.

15) M. COPISAROW, The metabolism of fruit and vegetables in relation to their preservation — *The Journal of Pomology and Horticultural Science* No. 1, April 1936.

16) F KIDD and C WEST, Gas-storage of fruit — *The Jour. of Pom. and Hortic. Sci* No. 3, Oct 1936.

17) C W. WARDLAW, Storage and transport of tropical fruits and vegetables — *Tropical Agriculture*, No. 4, April 1937.

18) BROOK C , BRATLEY C O and Mc COLLOCH L. P., Transit and Storage diseases of fruits and vegetables as affected by initial carbon dioxide treatment. — *U. S. Dept Agr Tech Bull* 519, 1936.

19) C A. EAVES, The present status of gas-storage research. — *Scientific Agriculture*, No. 15, 1935

20) J. BARKER, The storage of vegetables. — *Rep. Food Invest Bd. Lond. for* 1935, 1936

21) E V MILLER and C. BROOKS, Effect of carbon dioxide content of storage atmosphere and carbohydrate transformation in certain fruits and vegetables. — *The Journal of Agricultural Research*, No. 8, October, 1932.

22) TINDALE G. B., The cool storage of plums. — *J Dep. Agr. Vict.* 1935, n° 33

23) F. G. GUSTAVSON, Influence of oxygen on carbon dioxide on the respiration of tomato fruits. — *Amer. J. Bot.* No. 23, 1936.

24) BROOK C , Transit and storage diseases of fruits and vegetables as affected by initial carbon dioxide treatments. — *Tech. Bull. U. S. Dep. Agric.* 519, 1936.

25) LEVIE E. L., Bewaarproevon met pisangs. — *Landbouw*, No. 12, 1936.

26) Sul Comportamento delle banane immature nelle atmosfere artificiali. — *F. Scurti e E. Zavanalu*; Annali della Sperimentazione Agraria; Vol. 21, 1937.

27) C. W. WARDLAW. — Tropical fruit and vegetable, on account of their storage and transport. — *Tropical agriculture*, No. 3, March, 1037

28) C. W. WARDLAW and E. R. LEONARD, The storage and physiology of tropical fruits. — *Tropical Agriculture*, No. 12, 1935.

ORGANISATION AND MAINTENANCE OF HORSE BREEDING IN THE DIFFERENT COUNTRIES

SUMMARY: Introduction. — *A.* Countries having national studs — *B.* Countries having studs exclusively under private ownership. — *C.* Synopsis

INTRODUCTION.

In respect of organization and the measures taken for its maintenance, horse breeding holds a special position in comparison with other branches of animal breeding. It is well known that in the majority of countries, greater assistance is given by the State to this branch of stock breeding than any other and therefore it is necessary to consider the official measures taken to encourage this activity, in order to obtain an accurate impression of the present situation in the different countries.

Particular attention on the part of the State is all the more necessary in that horse breeding is especially difficult and that the State which purchases horses on a large scale, chiefly for the purpose of national defense, is essentially interested in the trend of breeding and in attaining a high level in quality.

The official measures are generally of a kind to supplement private enterprise, as an incentive to breeding and to raise the quality and to eventually prevent any decline in horse breeding. It should always be studied whether these measures show possibilities of succeeding, of subordinating the trend of horse breeding to the economic and military requirements of the country, and ascertaining that a sufficient number of horses are raised suitable for all branches of the country, and ascertaining that a sufficient number of horses are raised suitable for all branches of industry, transport work, for agricultural and military purposes.

Without preliminary planning, the majority of horse-breeding establishments and regions would become exhausted in a series of varying experiments with every possible breed. One of the most important duties of the organizations protecting the interests of horse breeding consists therefore in adapting this branch of stock breeding to the natural conditions and needs of the country, and in preventing its decline.

Seeing the importance of the influence of the State in horse breeding, an attempt has been made in this article to give a synthesis, taken from an international point of view, of the official measures applied in the different countries. In many countries, it is the influence exercised by the State ownership of stallions which plays the greatest part in horse breeding. Therefore, it is the endeavour of this article to give as detailed a study of this influence as is possible within the limits set, to show the breeds from which are taken the stock of national stallions and also to review the breeding centres, where the majority of these stallions were raised. The article will conclude with a description of private-owned studs a discussion of the laws and ordinances controlling them, and a comparative study of their importance with regard to the state ownership of stallions.

For ensuring the success of national horse breeding. One of the most important conditions is a well organised and efficient stud service. This is the most difficult part of horse breeding, especially when the breeding is practised chiefly in the small and medium-sized farms. Generally, the small land-owner is very rarely in a position to maintain a stallion, and especially a really good animal, as the expenditure in purchasing and feeding a stallion would be excessive. If the small farmer is unable to hire from a large estate owner a stallion suitable for his requirements and authorised for service, or if studs under private ownership have not sufficiently developed in a co-operative sense to meet the existing requirements, horse breeding is destined to decline. In such a case, the State should grant assistance for several reasons (not the least being national defense) take an interest in the maintenance of breeding, and also endeavour to bring about an improvement in quality.

The State exercises an influence on studs

(1) by placing stallions at the disposition of those who need them,

(2) by preliminary approval required for stallions intended to be used for service

In many countries, the State maintains a special organisation for the hiring out of stallions. The stallions owned by the State are maintained, excepting during the service period, either in stallion depots, which distribute the stallions among the different service stations when required – or else are placed with private individuals In several countries the stallions used for service are not entirely owned by the State, but the government contributes a certain amount towards the purchase price, reserving the rights of partial ownership.

In respect of the manner in which the State suppiies the stallions there are some differences between the countries in which they are state-owned. In some countries, the necessary stallions are all or partly bred in studs established for this purpose, in other countries, establishments of this kind do not exist, but the State purchases the number of stallions required locallv, or eventually from abroad.

The *State studs* merit closer consideration. They play an important part in the supply of stallions intended for service and in this way, have already affected indigenous horse breeding. On the other hand, they are model establishments intended to show the private horse breeder, the results which can be obtained under conditions suitable for the region in question. Another fact of importance is that they constitute, if it may so be expressed, the germinative cells which gave rise to the organisation of national horse breeding. Originating mainly from princes' stables or from military establishments they have attained the position they hold to-day regarding national horse breeding.

The purchase of stallions may be effected in various ways·

(1) Where the young stallions are purchased on principally or at least for the greater part as colts, they are collected in the national horse raising *establishments*, which are obviously superfluous if the stallions, are bought at an age when they can already be used for service.

(2) Moreover, special *National Training School* are often established for stallions raised either in the studs or purchased where they will be tested as to

their health, constitution, capacity etc., before they are employed for national breeding.

This short summary (to which perhaps, should be added the *military studs* and the *remount depots,* as national establishments intended chiefly for selection and breeding for the army, as well as supplying stallions required by a few private horse breeders for the breeding of army horses) shows the extensive and complicated organisation required for the maintenance of a stud service.

But, there are also some countries, as has already been mentioned, which have no State-owned stallions. It may be asked, therefore under what conditions is the state ownership of stallions justified. As has already been mentioned above, an important part is played, in this respect, by the economic structure of the country, by the topographical apportionment of the stock of horses, by the organisation of horse breeders, by their economic position, no less than by the knowledge of the farmers in animal husbandry, especially in such a complicated and difficult subject as horse breeding.

But the race bred is also of importance; the selection, testing maintenance and breeding of the young animals are considerably easier for stallions of draught breeds than thoroughbreds.

Naturally, there may be a transition from state-ownership of stallions to exclusively private ownership. Thus the ministerial Councillor RICHTER (of the Prussian Studs Administration) in the work entitled *Die preussische Gestutsverwaltung,* published in 1927 at Hanover by the studs' Director GROSSCURTH, under the auspices of the Ministry of Agriculture, Domains and Forests, with regard to this question, states· " The task of the studs' Administrations cannot be considered as accomplished until a horse breeding district has managed to raise its breeding stallions without having to import stallions from another horse breeding region, and until the quality of these stallions guarantees a continual higher development of horse breeding., on the condition that this increase be accompanied by a regular sufficiency, quantitatively and qualitatively, of privately owned stallions.

" But, even if this level had been attained, circumstances may arise which show the urgent necessity for the state ownership of stallions, at least up to a certain degree. Even the best established studs under private ownership can become disorganised during periods of economic depression; they may not be able to overcome more or less long periods when adverse circumstances compel them to draw upon the supplementary reserve funds, and when it may not be possible to obtain the money required for the purchase or the best stallions. Consequently, it is the duty of the Government by means of the studs' administrations to save the position attained even at the cost of considerable pecuniary sacrifices thus preventing the inevitable decline in horse breeding.

The private ownership of stallions plays an important part not only in the countries where there are no state-owned stallions, but also very often as a complement of the latter. By means of official *approvals,* the State endeavours to exercise some influence on horse breeding carried on with privately-owned stallions, an influence which will show all the more possibilities of success the greater the understanding of his work by the horse breeder will be. It is obvious therefore, that the relationship between privately owned stallions and state-owned stallions is of vast importance to the position of horse breeding in different countries, which aspect will now be considered more closely.

The fore-going notes show the importance of the *organisation of stallion-ownership* in ascertaining the position of horse breeding in different countries. A study of the total stock of stallions employed in national horse breeding gives a characteristic impression of its present trend. On the other hand, the historical examination of the development of the organisation underlying, shows the changes which national horse breeding has undergone in the different countries, changes which often find expression in the breed of the present stocks.

Particularly in view of the fact that the total number; of stallions of a country is of predominant importance as regards breeding, this question will be treated in detail in the reports on the various countries, and the national Institutions charges with the encouragement of horse breeding will be enumerated.

Besides the question of stallion-ownership, the measures taken for the support of this branch of animal husbandry which influence and determine to a great extent the development of horse breeding in the different countries will also be discussed. Among these measures of encouragement should also be included the *measures of commercial policy*, notably. in the importing countries; the customs legislation and recent import quotas – in exporting countries, organisation of the export trade.

While some of these measures are intended to better conditions affecting the sale of horses, others tend to improve breeding especially from the technical point of view These latter measures include stud-books which complete the organisation of studs by showing the total stock of brood mares.

Horse shows and *races* also contribute considerably to the improvement of horse breeding, and also more recently the various *output tests* as a means of selection in breeding for yield value

In conclusion, it is proposed to consider also the various systems of *prize awards*, by means of which the State or other institutions encourage horse-breeding, as well as special schools for the breeding and maintenance of horses (riding and horse driving schools) and the organisation of horse-breeding associations.

A — COUNTRIES HAVING NATIONAL STUDS.

1. — BULGARIA.

1. — History of the organisation of horse breeding.

During the period of the Turkish rule (1393-1878), horse-breeding was kept almost entirely in the hands of the Turks, as the Bulgarians had absolutely no rights or possessions.

The Turkish squires (" Bejowe ") maintained, besides other animals, entire herds of horses (" Hergeleta "), composed mainly of indigenous horses and sometimes crossed and improved with oriental horses of value.

In Bulgaria, the first stud, that of Kabijuk, was established in 1864 by Mithat Pasha with a stock of oriental horses of value. During the war of independence (1877-1878) the entire stock of this stud and the greater part of the better horses of private horse breeders were taken away by the Turks. After the liberation of the country, an endeavour was made for the first time to re-organise the Kabijuk stud for military purposes. The stock of breeding animals (28 stallions and 150 mares), purchased in Russia and composed chiefly of Orloff trotters had no well defined characteristics of the breed.

In 1887, this stud was closed, and later in 1894 re-opened under the control of the Ministry of Agriculture and State Domains. At this period, the Klementina stud near Plewen was also established. Two stallion depots were attached to these studs. The authorities of the different districts (18 in all) applied themselves to the development of national horse breeding; they maintained throughout the country permanent stations of stallions for service, each provided with several stallions and were often erroneously called stallion depots. In 1899, 3 other State stallion depots were established in south Bulgaria. In these 5 depots all the stallions from the permanent service stations were collected. A little later, the military stud Bojuriste near Sofia was founded.

In all these studs and depots, it was soon found necessary to also institute different sections for other farm animals. In order to improve the indigenous breeds, stallions of the following breeds were employed in the haras and depots: Arab, Anglo-Arab, Orloff trotter, English thoroughbreds, English halfbred, Nonius, Ardennais. Since 1924, in the 2 studs are bred only Arab, English half-bred, Anglo-Arab and Nonius breeds, and the resultant stallions are delivered to the stallion depots.

2. — Present state of the organisation.

In Bulgaria, the organisation and maintenance of horse breeding are controlled by the Ministry of Agriculture, and this function is regulated by the Law of 5 July, 1925, relating to agricultural production and the protection of rural property. The stallions are supplied for horse breeding from the studs directed by the State, the communes and by private enterprise. The State studs now produce all the stallions required, while formerly some were imported. The State encouraged the breeding of the best foals produced by mares registered in the stud-books, and these young stallions are purchased from the communes.

Studs under private ownership are less important; stallions are used which are raised by horse breeders themselves or else bought from other breeders. The Law of 1925 renders compulsory the approval of all stallions employed for national horse breeding; those animals which are unsuitable for service are immediately castrated.

STATE STUDS.

The State maintains 2 studs (Kabijuk and Klementina) and 5 stallion depots (at Kaja-Borum, St. Zagora, Plowdiw, Kabijuk and Klementina) and 1 military stud (at Bojuriste) for the production of cavalry horses.

The studs and also the stallion depots raise not only horses, but also cattle, sheep, pigs and poultry, and sell breeding animals at a low price to the communes and private breeders.

(a) *National studs.*

(1) The Kabijuk stud, situated at 12 km. from Schumen, was established by the Turks (MIDHAD PASHA) with a stock of oriental horses. During the war of independence (1877-1878), the horses were taken by the Turks in retreat. In 1882, this stud was re-established, as a military stud, with Orloff trotters and other half-breds originating in Russia. In 1887 it was again abolished and was only re-organised by the Ministry of Agriculture in 1894.

This establishment covers an area of 2,710.3 ha., of which approximately 1,539 ha. are composed of grasslands and pasturages. Thoroughbreds are bred together of: thoroughbred Arab horses (9 stud stallions and 86 brood mares) and the English half-breds (9 stud stallions, that is to say those which never leave the stud and 71 brood mares).

At Kabijuk, other breeds as well, as horses are raised, these are:

Cattle (Grey Bulgarian breed: 2 bulls, 45 for breeding, 55 female calves and heifers, 24 male calves

Buffaloes. 1 bull 21 females, 32 calves.

Pigs (« deutsches Edelschwein ») 3 boars, 32 sows, 93 young pigs.

Sheep (Schumen breed, copper red breed): 59 rams, 809 ewes, 484 one-year old lambs.

Poultry 484 fowls.

To the Kabijuk stud is also attached a stallion depot, of which further mention will be made.

(2) The Klementina stud, situated at approximately 14 km to the north of Plewen, began as a stallion depot established by the administration of the Plewen district.

It was taken over by the State in 1894, and established as a stud in 1899. The original stock of mares was composed of 33 indigenous mares who were served by Anglo-Arab stallions from Russia.

This stud covers a surface area of 2,385 ha., comprising 819 ha. of grasslands and pasturages, 1,413 ha. in fields and the remainder consisting of farm buildings, vegetable gardens, orchards, forests etc.

The stock of horses is composed of:

Stallions never leaving the stud: 10 Anglo-Arabs (of the Gidran type) and 5 Nonius.

Brood mares: 101 Anglo-Arabs, 18 Nonius and 9 English half-breds.

The following animals are also kept:

Cattle (Grey Bulgarian breed): 2 bulls, 73 cows for breeding, 62 female calves and heifers, 58 male calves and yearling bulls.

Pigs (« deutsches Edelschwein »): 5 boars, 48 sows, 412 young pigs and suckling pigs.

Sheep (Klementina white breed, combed wool merinos, black-headed breed): 115 rams 668 ewes, 574 one-year old lambs.

Poultry: 356 fowls (White Leghorn and Rhode Island), 13 ducks, 9 geese, 63 turkeys

To the Klementina stud is attached a stallion depot which will be described further on in this article.

(3) The Bojuriste military stud situated to the west of Sofia, covers approximately 1,800, ha.

The stock of horses is composed of·

English thoroughbreds and half-breeds 9 stallions, 99 brood mares, 188 colts and fillies.

Anglo-Arabs: 19 brood mares, 57 colts and fillies.

Arabs: 13 brood mares, 17 colts and fillies.

28 *cows* of the Montafon breed are also maintained

(b) *Stallion depots.*

These depots only number 5 in all, of which 2 are attached to the two studs described above.

(1) The Kabijuk stallion depot comprises 59 Arab stallions and 76 English half-breds, and supplies the Schumen province.

(2) The Klementina stallion depot which is composed or 9 Arab stallions 107 Anglo-Arabs, 25 Nonius and 6 English half-breds, supplies the provinces of Plewen, Wratza and also partly Sofia.

Three other stallion depots were established in 1899.

(3) The Kojaborun stallion depot near Jambol founded as such and later changed into a stud bred Ardennais horses and Orloff trotters. In 1925, these two species no longer being bred, this establishment continued to function as a stallion depot.

An area of 1,055 ha, is covered.

The total stock is composed of.—

Stallions for public service· 28 Arabs, 14 Anglo-Arabs, 14 English half-breds.

The following animals are also kept

Cattle (Bulgarian grey breed) 1 bull, 15 cows for breeding, 23 female calves and heifers 12 male calves

Pigs (« deutsches Edelschwein ») 3 boars, 26 sows, 126 young pigs

Sheep (Zigaya and Karnobat breeds) 22 rams, 234 ewes, 117 one-year old lambs

Poultry 623 fowls 157 ducks, 63 geese, 33 turkeys

There are 1 stallion 15 brood mares and 6 colts employed on the farm as animals for service.

The stallions used for public service are divided among the service stations of the Bourgas region.

(4) The Stara Zagora stallion depot, situated to the south of this locality, covers approximately 210 ha.

The stock is composed of —

Stallions used for public service: 2 Arabs, 26 Anglo-Arabs, 8 Nonius 15 English half-breds, and 16 donkey stallions.

The following animals are also maintained:

Cattle (grey Bulgarian breed) 1 bull, 17 cows for breeding, 8 female calves and heifers 14 male calves and young bulls

Pigs (« deutsches Edelschwein ») 2 boar, 18 sows, 40 young pigs

Sheep (Stara zagora breed) 8 rams, 158 ewes, 181 lambs up to one-year old

Poultry· 352 fowls, 18 ducks, 57 turkeys

The stallions used for public service are divided among the service stations in the Stara Zagora region.

(5) The Plovdiv stallion depot covers a surface area of about 200 ha.

Stallions used for public service: 53 horses comprising the following breeds: Arabs (14) — Anglo-Arabs [Gidrau] (12) — English half-breds (22) — Nonius (5). There are also 17 donkey stallions.

For breeding purposes, the farm of this depot maintains

Cattle (grey Bulgarian breed) 2 bulls, 21 cows, 26 female calves an heifers, 17 male calves
Pigs («Deutsches Edelschwein») 1 boars 10 sows, 24 young pigs
Sheep (Klementina breed) 5 rams, 195 ewes 121 lambs up to one-year of age.
Poultry 250 fowls, 135 ducks, 58 geese, 33 turkeys

The stallions used for public service are divided among the service stations of the Plovdiv region and those of part of the Sofia district.

COMMUNAL AND PRIVATELY-OWNED STUDS.

The number of State-owned stallions being insufficient, the State, encourages firstly the breeding of good stallions by private breeders in conformance with a regulation and secondly assists the poorer communes in the procuring stallions and in providing them with stables The privately owned stallions and those belonging to the communes are of the same breed as those owned by the State. The stallions are examined every year and all those found to be unsuitable are immediately castrated.

3. — Other measures of encouragement.

As a means of encouraging horse breeding, there are also the horse breeders' associations assisted by the Ministry of Agriculture, the majority (over 130) belonging to the Federation of Bulgarian Horse Associations, (headquarters at Klementina). A show is held every spring of the young horses bred by these associations. District shows are also organised every 4 years.

The Ministry of Agriculture and State Domains has undertaken an active propaganda for the proper care and feeding of horses.

In the stallion depots stud-books are kept in conformance with a regulation and in which the selected mares of the district in question are registered. Moreover, the interest in horse breeding is furthered by the Bulgarian Jockey Club, which, like the horse breeders' associations, organises races having the character of important popular festivals, especially on the occasion of the holiday of St. Theodore (" Todorowden ") which is celebrated in spring.

ISTVÁN MOSKOVITS.

DIFFERENT ALCOHOLIC BEVERAGES WHICH MAY NOW BE PREPARED FROM CITRUS FRUITS

The alcoholic beverages which are prepared from citrus fruits by fermenting the juice with pure cultures of wine yeast after the addition of other fermentable sugars, have a pleasant aroma and taste and are rich in energizing and oligo-energizing elements (vitamins, etc); and especially in some countries, there is every possibility of successful production on a commercial scale developing very considerably.

Already the production of non-alcoholic beverages and concentrated citrus fruit juices, similar to the preparation of unfermented wines and other beverages having concentrated fruit juices as a basis, has attained considerable importance. However, in order that the product may maintain the taste, aroma, and good keeping qualities demanded by the consumer, the natural or concentrated juices should be obtained from selected fruits, perfectly sound and sufficiently ripe. The characteristic flavour and aroma of the different varieties of oranges, etc., should also be taken into consideration. In this way, juices of an uniform type and excellent flavour may be obtained from which it will be possible to prepare wines, brandies and cordials from citrus fruits, in great public demand.

Characteristics.

The alcoholic beverages prepared from citrus fruits should show special characteristics and do not resemble in any way the wines and ciders usually made from fruits, though at the same time drawing some advantage from the progress made in the cider industry. As is well known, the presence of a minute quantity of juice of abnormal composition, slightly bad or obtained from fruits either over-ripe or beginning to ferment, is sufficient to spoil the product very considerably. In this respect, it is not possible for the enzymatic processes of fermentation, the object of which is to remore the greater part of the matter in suspension and the colloidal substances from the juice, the extraction of the oil from the expressed juices by centrifugation, filtering by means of the Dicalite filter, or even more effectively by the use of the sterilizing Seitz filter or in a vacuum or under the pressure of inert gases in filters of various types, to prevent the consumer who is a connoisseur discovering the organoleptic anomalies and consequently refusing the product.

In consequence, citrus fruits should be utilized in accordance with their characteristics: certain juices having fixed pH and rH values and the dry matter and organic acide in a determined ratio, may be used for the preparation of non-alcoholic beverages sold bottled as well as for concentrated juices in making beverages of a similar type; other juices may be utilized for the preparation of beverages of a more or less alcoholic type; others may be utilized for the extraction of alcohol and the recovery of organic acids and other products.

When it is not a question of the juice of very sweet oranges, utilizable in other ways, the quantity of alcohol obtainable from citrus fruits, lemons and oranges, is very low; it is not an economic proposition unless the production and certain utilizations of this alcohol are comprised in the general cycle of the treatment of citrus fruits, for example: purification of the citric crystals, production of pectin and finally the recovery of the alcohol for industrial purposes. On the other hand, the alcohol obtained from citrus fruits of good flavour may be utilized in many different ways: according to the mode of preparation, the alcohol keeps the aroma and the characteristics given to it by the ethers of the different varieties of citrus fruits from which it was obtained. Consequently, it will be possible, either through fermentation by means of mixed cultures or by the addition of citrus spirits to the fresh juice to obtain a range of citrus alcoholic beverages having a different flavour and aroma.

The scientific literature contains only a few references to alcoholic beverages prepared from citrus fruits Since 1912 CRUESS had prepared citrus wines containing between 4.25 and 4 50 per cent alcohol by volume while he was studying concentrated grape and other fruit juices which have now become a flourishing industry Later came the research work of HILL H. P (1935), JOSLYN M. A and MARSH G L (1934-35), VON LOESECKE (1934-35). The results obtained by the Bureau of Chemistry and Soils, Winter Haven, Fla. (U. S A.) and the possibilities of the development of this new industry (*) are shown and discussed in detail in a concise study by HARRY W. VON LOESECKE, H. H MOTTERN and GEORGE N. PULLEY, of the Citrus Products Station, Winter Haven, referring entirely to the citrus fruits grown in Florida, to which this article chiefly refers in respect of the appreciable differences occurring in the processes and the products obtained according to the citrus varieties cultivated in the various countries.

Citrus varieties utilized in the preparation of alcoholic beverages.

Several varieties of citrus fruits are available in Florida for the preparation of alcoholic beverages *Citrus aurantium*, the common orange, *Citrus nobilis* of the mandarin group, and *Citrus decumana* or grape fruit. Or these three groups only two apparently give wines of different characteristics *Citrus decumana* and *Citrus aurantium sinensis*.

Experiments have shown that there is no appreciable difference between the wines prepared from Seedling and Valencia oranges. None of the wines obtained had a characteristic aroma or taste which would afford a positive identification of the fruit origin. Although grapefruit and oranges wines differ in taste and aroma, neither have a definite orange or grapefruit flavour, in this respect differing from grape wine, where the variety of grape affects considerably the quality and type of product obtained. However, it is probably otherwise

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(*) The output of some citrus wineries in Florida amounts to 80,000 litres per year for the varieties of the Mediterranean countries where the fruits have a very pronounced flavour and odour.

During the normal ripening of grapefruits, oranges and tangerines, changes occur in the pH and rH values of the juice, a decrease in acidity and an increase in sugar. The composition of the fruits varies according to the regions where cultivated. In the following tables are given the limits of acidity and the sugar content of Florida oranges (Table 1) during the harvesting season (from January to May) of 1931, and the general average percentages given by different research workers for oranges, lemons and tangerines in Table II.

TABLE I. — *Oranges* (VON LOESECKE AND COLLABORATORS).

Reducing sugars %	2 20 — 6 87
Non-reducing sugars %	2 60 — 5 77
Total sugars %	4 80 — 12 64
Total acid (as citric), %	0 53 — 1 61
Ash %	0 32 — 0 55
Specific gravity	1 03 — 1 06

TABLE II. — *Total sugars.* (*according to different analyses*).

Oranges (*Citrus aurantium*)					
minimum	4 72	—	—	—	—
average	7 27	4 59	6	6	—
maximum	15 36	—	9 70	11	—
Lemons					
minimum	1	—	—	1	—
average	0 5	—	1 5	1 5	—
maximum	—	—	—	2	—
Tangerines					
average	1 14	0 5	1 20	1 5	1 5
maximum	—	—	—	—	2

Grapefruit contain less sugar than oranges and tangerines, the following data show the composition of grape fruit juice (Duncan) from September 1933 to April 1934.

Reducing sugars %	2 00 — 4 39
Non reducing sugars %	2 91 — 3 75
Total sugars %	4.91 — 8 14
Total acid (as citric) %	1.51 — 1 96
Brix	9.7 — 12.1

The sugar content of oranges, tangerines and grapefruit is always lower than that of grapes, which varies from 12 to 25 %. Because of this low sugar content, for making wines, the addition of sucrose or glucose prior to fermentation is necessary. In consequence of the high acidity of these juices, it would appear impossible to obtain a good dry wine. Attempts made in this direction resulted in an excessively sour product; by partially neutralizing the acidity by the addition of calculated amounts of calcium carbonate, the wine obtained was found to be less sour, but had a modified and disagreable flavour.

Extraction of the juice.

The methods of extracting the juice vary according to the resultant product to be obtained; preparation of non-alcoholic beverages, alcoholic drinks, citrus spirits, industrial products (citric acid, pectin). The fruit used should be sound, second grade, and the peel should not be attacked by any fungus or cryptogamic disease, fruits which because of their colour or size are unsuitable for the market, are chosen. It is important in order to completely separate the residual oil, which is very oxvdizable and retards fermentation, to extract the oil from the peel (especially in the case of Italian and Spanish fruits) by means of special apparatus (Cannavo, Speciale, Ramini, etc.) or peelers (Avena etc.) taking into consideration that the value of the oil obtained by means of the first mentioned apparatus is higher. The fruits previously washed and carefully dried are cut into two by various ways by extra sharp inoxydizable steel knives or by means of a reinforced silver wire revolving at high speed, or simply by cylindrical citrus cutters. The fruits are then reamed by hand and the juice thus obtained is screened to separate the pulp and seeds. The juice passes into sterilized wood recipients into which a mixture of N and CO_2 has been introduced as an atmosphere without oxygen is necessary in order to maintain the vitamins and ethers.

It is especially important that any contact between peel and the juice should be avoided in order to prevent any variation in flavour of the juice to be fermented In the juice is extracted by means of screw presses similar to those used in the case of grapes, it is advisable to previously peel the fruits, either by machine or by hand, if the oranges have a loose thin peel. In California, the fruits are peeled by hand and the juice extracted by machinery is then passed through a revolving screen of 20-mesh monel metal to separate pulp and seeds.

Tangerines because of the thin and brittle peel are not so adaptable for reaming The fruits were passed through a screw press and the juice obtained was screened and then passed through a supercentrifuge in order to separate the essential oil of the peel, but as this process was incomplete, sufficient oil was left to retard fermentation, and the juice possessed a bitter taste which rendered it unfit for wine purposes On the other hand, on distillation, the product obtained had a delicate and very pleasant aroma, very suitable for the preparation of certain classes of liquers and cordials. Because of the oil contained, the product became milky when diluted to proof with distilled water. For this reason, it would not be entirely suitable for a beverage similar to brandy.

A suitable juice for wine making was obtained by first peeling the fruit before extracting the juice The yield of juice varied according to the size and quality of the fruit

In fruits which through dessication showed a partial drying of the juice sacs, the extraction and fermentation of the juice could be carried out normally, if the fruit was sound

Fruit not frozen and rich in juice yielded on average of 85 gallons per ton This amount may even run as high as 104 gallons CRUESS obtained 132 8 gallons of juice per ton in the case of California Valencia oranges

Grapefruit juice has a bitter taste caused by a glucoside, narangin (C_{21} H_{26} O_{11}) During maturation, this glucoside diminishes but never entirely disappears Fermented grape juice is more bitter than the unfermented juice owing to the absence of sugars For this reason, grape-fruit wine may have a disagreable bitter taste. This bitterness may be decreased by filtering the juice prior to fermentation with a special filtering medium or by treating the fermented juice with activated charcoal at the rate of 4 grams per litre of juice at 55° C for 30 minutes

Treatment of the wine with char yields better results than mere filtration, subsequent aging in barrels further improved the flavour

TABLE III — *Analysis of Citrus Juices*

(John A ROBERTS and LEONARD W GADDUM Gainesville Fla, Winter Haven Fla)

	Seedling Orange	Blood Orange	Valencia Orange	Orange Lue Gim Gong	Marsh Seedless Grape fruit	Seedy Grape fruit	Tangerine
Citric acid %	0 74	1 11	0 98	1 05	0 89	1 35	1 26
Specific gravity at 20° C	1 051	1 049	1 048	1 051	1 028	1 039	1 058
Degrees Brix	12 65	12 15	11 80	12 60	6 95	9 74	14 33
Maturity ratio	17 09	10 95	12 04	12 00	7 81	7 22	11 37
pH	3 6	3 2	3 5	3 3	3 0	3 0	3 2
Water %	87 35	87 85	88 20	87 40	93 05	90 26	85 67
Organic matter %	12 20	11 67	11 39	12 20	6 73	9 33	13 93
Nitrogen organic %	0 099	0 092	0 090	0 094	0 043	0 052	0 069
Proteins	0 62	0 58	0 56	0 59	0 27	0 33	0 43
Reducing sugars %	4 48	3 95	3 46	4 32	3 44	3 96	3 09
Sucrose %	4 86	4 97	5 02	4 89	1 34	2 24	7 89
Total sugars %	9 34	8 92	8 48	9 21	4 78	6 20	10 98
Pectic acid %	0 006	0 002	0 005	0 007	0 004	0 004	0 025
Ash %	0 453	0 482	0 412	0 403	0 218	0 414	0 401

Fermentation organisms.

Pure cultures of wine yeast were used in this work With the exception of one culture (No. 104), they were obtained from the American Type Culture Collection at Chicago Transfers to wort agar were made every three months and stored in the ice chest

The cultures were as follows:

4123 *Saccharomyces ellipsoideus,* Burgundy wine yeast.

4097 *Saccharomyces ellipsoideus,* var. Champagne (French champagne yeast).

2338 *Saccaharomyces ellipsoideus,* I. Hansen.

2373 *Saccaharomyces spiritus vini.*

4134 *Saccharemyces sake Yabe* (Japanese saké yeast).

104 *Saccharomyces ellipsoideus,* isolated from oranges by Harry E. Goresline, Bureau of Chemistry and Soils.

The culture was added to 50 cc. of sweetened sterile orange or grapefruit juice. This was allowed, to incubate for 48 hours at 24° C, and was then added to 500 cc. of sweetened sterile juice. After 48 hours this juice was in active fermentation and was added to 5 litres of sweetened orange juice which had been sterilized by boiling for 15 minutes and them cooled. This quantity of « starter » juice was sufficient to inoculate 50 litres of unsterilized juice. Several experiments were made where the main batch of juice was pasteurized. But this treatment had no apparent affect of the wine. Pasteurization would only entail additional work with a resulting increase in the costs.

It was found advisable to use starters not older than 48 hours; older starters caused a delay in fermentation. The sludge from a previous batch may be used as a starter, but this sludge is not a pure culture and it was found inadvisable to use it more than once.

Citrus wines prepared by using different types of pure cultures of wine yeast failed to show any marked differences in either bouquet or taste.

TABLE IV. — *Correlation between Brix of juice before fermentation and alcoho in juice after fermentation.*

Brix	Per cent alcohol by volume
6	3 2
10	5 5
14	7 9
18	10
22	12
26	14 1
29	16
30	16 5

Sweetening the juice.

Owing to the small amount of sugar contained in citrus juices, additional sugar is necessary to yield a wine which is palatable and possesses satisfactory keeping qualities. With the addition of certain quantities of sugar, as high as

17 % alcool by volume may be obtained without taking special precautions. Numerous experiments carried out have shown that if the Brix reading of the juice is multiplied by 0,55, the result will approximate the amount of alcohol in per cent by volume in the finished product provided fermentation was complete. This figure was obtained from experiments using *Saccharomyces elllipsoideus* var. Champagne (No. 4097). Insufficient data are available to state whether this figure is valid when other cultures are employed.

As ordinary table wines contain approximately 13 per cent. alcohol by volume, sufficient sugar was added to increase the Brix of the juice to 24, which upon fermentation yielded a wine of approximately 13 per cent. by volume (see Table V).

TABLE V. — *Yield of citrus wines on addition or different amounts of sucrose to the juice prior to fermentation.*

	Grapefruit	Oranges
Weight of fruit (kgs)	100 50	246 00
Juice yield per ton of fruit (gall)	81 00	63 20
Original Brix of juice	10 50	10 30
Sucrose added, grams per litre	280 00	190 00
Brix after adding sucrose	26 00	23 60
Temperature of fermentation (°C)	16 00	16 00
Wine yield per ton of fruit (gall)	90 00	69 00
Alcohol in wine (Vol per cent)	14 80	13 50
Total reducing sugars in wine, gms per 100 cc	0 35	0 40

In general, the amount of sucrose to be added is from 180 to 210 grams per litre of juice when wine is to be made. Brown sugar was found to be insuitable as it imparted a molasses-like odour to the wine. In the preparation of citrus spirits, 120 grams per litre of sugar were added to the juice, and a fermented juice containing about 10 per cent. alcohol was obtained. It appeared to make no difference whether the sugar was added in one amount or in small quantities.

The amount of alcohol in the finished wne depends not only on the Brix of the juice and temperature of fermentation, but also upon the culture and kind of sugar used.

Temperature of fermentation.

It was impossible to ferment citrus wines at the high temperatures used for grapes, as owing to the presence of acetic acid organisms, high fermentation temperatures yielded a product with a pronounced aroma of ethyl acetate. In making citrus wines, it is advisable to maintain the temperature at about 16° C, with brandies between 24° and 27° C. When the fermentation became active the must was cooled to the desired temperature by pumping the fermenting juice through a tin coil immersed in an ice bath. This method is more efficient than immersing cooling coils in the fermenting vat itself, and circulation of the juice permits aeration and consequently lessens the danger of arresting fermentation caused either by too high a temperature or insufficient oxygen, etc.; the addition of ice to the must is not advisable.

The active fermentation takes place during the first three days. As the sugar content of the fermented juice is approximately 23 % (1 gm. of sugar liberates 120 calories in 100 cc. of juice, 1 gram of sugar will theoretically increase the temperature 1.2° C; without means of cooling, the temperature may rise as high as 35° C and consequently be detrimental to the yeasts, though not sufficiently high to hinder bacterial action.

Yield in alcohol of fermented citrus juices.

The yield in alcohol varies according to the different temperatures of fermentation. If fermentation is carried out at a temperature above 25° C, the alcoholic content of the wine decreass rapidly with increase in temperature and the product becomes darker in colour. In the experiments carried out at Winter Haven, the wine was fermented in flasks plugged with cotton, and probably the loss of alcohol caused by the higher temperatures was less than would be experienced if fermentation were carried out in large open tanks.

Treatment after fermentation.

When a vigorous starter of yeast is used and the temperature regularly controlled, active fermentation was completed in 10 or 11 days, using open tanks. In containers fitted with a water seal, where carbon dioxide is not readily lost, the period of fermentation is longer The cloudy supernatant wine is siphoned from the sludge and mixed with a filtering medium using 1 or 2 per cent according to the weight of the wine. In the experimental work an aluminium plate-and-frame press was used which gave satisfactory results although the filtered product was slightly cloudy. But this is unimportant as the wine must be passed through a « polisher » after aging and before bottling.

When the fermentation has proceeded properly, the wine contains from 13 to 14 % of alcohol by volume, and the residual sugar (as reducing sugars) amounts to 0.4 % Consequently, an excessively dry and harsh wine is obtained to which it was found advisable to add 3 to 5 % of sugar (sucrose or glucose) in order to obtain a slightly sweet wine. In no case did the addition of sugar cause secondary fermentation.

Strengthening and aging of wines.

Strengthened citrus wines are prepared by increasing the alcoholic content to 18 or 22 per cent. by the addition of citrus spirits, by increasing the sugar content to 7 per cent., if the wine contained 18 per cent. alcohol and 10 per cent. for a wine containing 22 per cent. alcohol.

The strengthened wines are heated to 52-55° C for about 60 days. The heating is carried out in plain oak barrels; the wine darkens and assumes a sherry-like flavour and colour. This operation should be carried out with great care in order to prevent overheating and excessive loss of alcohol. The light and strengthened citrus wines are aged in plain oak barrels between 27° and 32° C. The wines stored at these temperatures have a pleasant flavour after as short a storage period as seven months.

Spirits and brandy.

In preparing citrus spirits and brandy, sufficient sugar is added to obtain a wine containing approximately 10 per cent. alcohol by volume: about 120 grams of sucrose per litre of fermented juice. Excess sugar may yield a brandy of less aroma and flavour, and therefore the amount of sugar to be added should be kept to a minimum necessary for the recovery of the alcohol.

Before distilling, the cloudy wine is skimmed and siphoned from the yeast sludge, otherwise a brandy with a yeasty taste and odour is obtained.

The still employed by these research workers was constructed mainly for laboratory use its efficiency is *lower* than that of stills used in commerce. The fractionating column consists of a copper pipe 7.6 cm. in diameter and about 3 meters high. In the normal distillation column, carbon Raschig rings were used in place of the conventional plate and bubble caps. A separator served to return part of the condensate and wash ascending vapours.

The grapefruit juice used was extracted from cannery waste left in the preparation of grapefruit for canning. The product when aged in small oak kegs of 3 to 5 gallon capacity, previously treated with ethyl alcohol vapour and then steamed, acquires a palatable taste.

The product aged in charred barrels possesses a whisky taste and appears to age more rapidly than the brandy in plain oak barrels.

Neither grapefruit or orange brandy has an aroma or taste suggestive of the fruit of origin. However, some tasters were able to detect an orange flavour in orange brandy. Grapefruit and orange brandies differ from one another, the former having a characteristic taste and arome.

TABLE VI. — *Yield of grapefruit brandy upon addition of different amounts of sucrose to the juice prior to fermentation* (v. Loesecke and collaborators).

No	Original Brix of the juice	Sucrose added grams per litre	Brix after adding sucrose	Temp of fermentation °C	Alcohol in mash Vol	Yield of 100 Proof Brandy litres/hectolitres
1	9 5	0	—	24	3 85	7 6
8	9 4	120	19 2	24	10 0	17 7
14	9 7	6	—	20	7 4	14 8

Cordials.

In the preparation of citrus cordials, citrus spirits are used as a base with the addition of sugar syrup and oil expressed from the peel of the fruit. A better product is obtained from citrus spirits than from ordinary molasses alcohol. Citrus cordials contain 33 per cent. alcohol by volume and approximately 37 per cent. total sugars to which is added the essential oil obtained from the peel (cold-pressed). The mixture is allowed to stand for a week at about 27° to 30° C, it is then filtered and left to age in glass containers.

Tangerine, lime, lemon and orange cordials are prepared in a similar manner; the essential oils of the respective fruits are added.

Market possibilities.

The possibility of obtaining alcoholic citrus beverages (wines, brandies, etc.) having a characteristic aroma and flavour, and appealing to the public, gives a considerable impetus to his industry.

Although LOESECKE and his collaborators in their study speak of certain citrus wines having a taste and odour ressembling sherry and Sauterne wines, it would be a mistake to compare the typical wines and spirits obtained from the grape with those prepared from citrus or other fruits, which should also be specially labelled for the market, according to the type of beverage

TABLE VII. — *Citrus industry.*

I. — First grade fruits for export and direct consumption.

II. — First and second grade fruits.

- (*A*) Extraction of the juice for the concentration and preparation of non-alcoholic beverages, marmelades, jellies, etc.
- (*B*) Residual juice intended for alcoholic or other fermentations.
- (*C*) Pressed cakes.
  - (1) Extraction of the residual essential oils, terpenes.
  - (2) Extraction of pectin, and the preparation of products for cattle food.
  - (3) Production of ethyl alcohol, butyl alcohol and acetone.
  - (4) Seeds.
    - (1) Extraction of the oil by pressure or solvents Refining - Cold extraction of the oil *in vacuo* - Distillation - Polymerisation of the oil for industrial purposes.
    - (2) Utilization of the oil cakes· fuel, fertilizer, etc.

III. — Sound second and third grade fruits and residual juice – Preparation of various alcoholic beverages.

(*A*) Inoculation of the juice – Sweetening – Fermentation – Filtering aging – Fermenting – Different methods of treatment – Classification of the wines – Storage.

(*B*) Distillation of the wines - Brandy – Cognac – Citrus cordials – Treatment -- Maturation – Fermentation.

(*C*) Utilization of the by-products (see II-C).

(*D*) Citrus beers and various mixed beverages.

IV. — Second and third grade fruits of any kind for the production of industrial alcohol, pectin, citric acid – Utilization of the by-products (see II-C).

The following table shows in schematic form the processes required from which it may seen that it would be a considerable advantage to combine the industry of the preparation of citrus alcoholic beverages with that of citrus fruits in general.

In this way, a more complete utilization of the juice of second grade fruit as well as cannery waste for the production of deterpenized citrus oils obtained from selected citrus fruits of superior quality. Good quality alcohol obtained from citrus juice could advantageously compare with that prepared from molasses and starch, as a brandy, cognac etc. and as a hydro-alcoholic solvent for citrus oils, it could be effectively utilized for improving fermented beverages or citrus beverages having a low alcohol content (3-4 %) or giving beverages with a high alcoholic content, besides improving the taste, aroma and keeping qualities. It would also be possible to put on the market, as well as the different varieties of fermented drinks, a new type, prepared from citrus or other fruits, with a more or less high alcoholic content maintaining more effectively the aroma and oligo-energizing elements (vitamins), in this way, beverages, both palatable and better from a hygienic point of view, could be prepared.

Export.

With regard to the production of fermented and concentrated citrus juices for export, having a good alcoholic fermentation and maintaining as far as possible their characteristic odour and taste, reference is here made to (1) the processes of sterilization and purification of the juices without heat SEITZ and SEITZ BOHI by clarification under pression of CO_2, preferably mixed with N, (2) the use of an inert atmosphere during the preparation of the product, (3) the use of the oligodynamic action of silver or the catadynic process of the fermented juices to be frozen or concentrated, either in vacuum (Angeluci apparatus) (1) or by the removal of the water treated by the catadynic process as sterile ice. The use of catadynic process may also be suitable for preserving citrus wines. The application of supersonant waves, which has been successfully advocated in the purification, homogenization, the separation of excess citric acid crystals, etc., affords an integral maintenance in the must of the organoleptic and alimentary values, and the obtention of very palatable wines.

Besides these modern processes, it should be noted that various types of citrus wines may also be obtained by the slow fermentation method in closed receptacles, chiefly by using *Saccharomyces apiculatus*. Some yeasts like *Torulopsis dattila* can ferment sugar 20 times as quickly as ordinary yeasts. By using different processes of activation of the organisms which cause the alcoholic fermentation, capable of giving the same yield in alcohol in an unit time at an appreciably lower temperature, it is possible to obtain good quality citrus wines.

In the same way, it is also possible to bring about alcoholic fermentation with a type of yeast (" frigolevure ") which belongs to the *Saccharomyces* genus, and which at a temperature of + 6° C has a " fermenting activity " decidedly superior to that of yeasts not resistant to cold, which from a practical point of view is important and affords the possibility of obtaining citrus wines with different characteristics to those prepared by normal fermentation

A pleasant beverage incorrectly called " grape beer " may be prepared from grapes, in the same way, citrus beers of varying types but all very palatable may be produced.

Part of the barley or hop malt, which is often substituted by other cereals or sweetened substances, could, in taking the necessary precautions be replaced by concentrated citrus juice, and thus several types of beverages having a weak fermentation, or strong fermentation in the vintage tubs could be obtained (Narthon process).

In conclusion, it should be noted that in this article many other industrial possibilities occurring in the treatment of citrus wines having a high alcohol content (such as those applied to wines of the grape type have not been taken into consideration, also the preparation on a commercial scale of cordials made from bitter oranges (bitter type, curaçao, etc) which complete the possibilities of the utilization of citrus fruits in this branch of industry.

G. STAMPA.

Publications consulted:—

CRUESS W V, 50 years of progress in fruit products - *Am Fruit Grower* 54 No 9, 1934.

LOUW L. J, Fruit butter and fruit sweets — *Farming in South Africa* 10: 89 90 F, 1935.

BOYS J. A. & FENTON F., Jellies, preserves and fruit juices. — *Cornell ag Ext B.* 267: 1-45, 1933.

ROVESTI Guido, Preparazione e conservazione dei succhi di frutta con speciale riguardo all'azione oligodinamica dei metalli — *Rivista italiana essenze, profumi e piante officinali*, N. 12, 1933, Milano.

.... Premier Congrès International du Raisin et du Jus de Raisin. — **Tunis, octobre** 1936, Felix Alcan, Parie.

MAURO F., Le développement des applications du froid industriel en Italie, Rome 1936, Edit Enios, 65 pages.

LOESECKE Harry W., MOTTERN H. H. & PULLEY George N., Wines, Brandies and Cordials from Citrus Fruits. — *Industrial and Engineering Chemistry*, Washington 1936, No. 10.

ROMEO, G., Le essenze degli agrumi, Libreria D'Anna, Messina 1930.

GUILLEMET R. et C. SCHELL, Rapidité de fermentation du sucre avec diverres espècies de levures. — *Compt. R. Soc. Biologie*, 1936, p. 467.

ROVESTI Guido, Estratti, aromi ed eteri per liquori e sciroppi. — *L'Industria Chimica*, Milano, ottobre 1930.

RODANO' Carlo, Industria e commercio dei derivati agrumari, Milano 1930, U. Hoepli.

PORCHET B., Races de levures provoquant la fermentation alcoolique à basse température. — *Bulletin International du Froid*, Paris 1936, N° 5.

.... Congres of U. S Public No 401 (H R 8870) Sec 11 and ff.

STAMPA G., Directives modernes pour la concentration à basse température des liquides végétaux. — *Bulletin Mensuel de Renseignements Techniques*, Rome, 1932, N° 1, p 21

ROMEO A., L'huile de pépins de citron. — *L'Industria Chimica*, Roma 1931, N° 12

. .. Clarification des jus des fruits par un nouveau procédé enzymatique — *Agricultural Experimental Station*, Geneva (N Y) 1932.

.... Nuove macchine per l'industria agrumaria, (sfumatrice « Ramini »). — *Rivista Italiana delle Essenze, Profumi e Piante officinali*. Milano, 1937, N 3

.... *Florida Citrus Inspection Bur.* — Ann Rept for 1935-1036, p 117

JONES, D B, *Food value of oranges and grape fruit.* — U S Department Agriculture Pamphlet Washington 1935.

JOHN A. ROBERTS et LEONARD W. GADDUM, *Composition of Citrus Fruit Juices.* — Ind And Eng. Chem. Wash. No 5, 1937, p. 574

.... Il metodo Bennet. Ricevuto nell'applicazione industriale [Produzione del succo industriale di agrumi per la fabbricazione del citrato di calcio ad elevata purezza]. — Boll Uff R Stazione Sperimentale per l'industria delle essenze e dei derivati degli agrumi in Reggio Calabria Reggio Calabsia, G° 1-2, 1937, p. 3.

MISCELLANEOUS INFORMATION

Congresses, exhibitions.

VIITH INTERNATIONAL CONGRESS OF TROPICAL AND SUBTROPICAL AGRICULTURE — This Congress is organized by the International Scientific Agricultural Association for Hot Countries The Congress will be held at Paris from 20 to 25 September, 1937. All correspondence should be addressed to the Secretariat of the Congress, 41, Rue de la Bienfaisance, Paris (8°) President· Mr Edouard de Warren; Secretary General Mr. A. Fauchere

Medicinal plants.

THE INTERNATIONAL FEDERATION FOR THE DEVELOPMENT OF THE PRODUCTION, UTILIZATION AND COMMERCE OF MEDICINAL, AROMATIC AND SIMILAR PLANTS — The International Federation for the development of the production, utilization and commerce of medicinal, aromatic and similar plants has issued the following invitation to its members; the text is here reproduced in full

Invitation to participate in a conference of the *Permanent Executive Committee* and the *International Central Committee*, which will take place at Paris on 20 and 21 September, 1937.

Monday, 20 September, 1937 10 a m — Meeting of the *Executive Committee* and the *Central International Bureau at the Faculty of Pharmacy*, 4, Avenue de l'Observatoire — 3 p. m — Continuation.

Tuesday, 21 September, 1937 3 p m General Meeting at the Congress Hall at the Exhibition

A meeting to which are invited the Members of the International Congress of Herbalists and the Members of the Centre of Technical and Economic Documentation on medicinal and aromatic plants

Resolution to be decided — Report on the position of the question on standardisation — Report on manures, etc

22, 23, 24 September *Congress of the French Herbalists.*

Congress to which are invited The Members of the International Federation for the development of the production, utilisation and commerce of medicinal, aromatic and similar plants

D K

Agriculture in tropical countries.

AWARD OF THE MAYNARD GANGA RAM PRIZE — In 1925, the late Sir Ganga Ram, Kt, C I E, M V O, R B, with this well-known generosity, gave the Punjab Government the sum of Rs 25,000 for the endowment of a prize to the value of 3 000 rupees - called the Maynard Ganga Ram Prize - to be awarded every three years for a discovery or an invention, or some new practical method which will tend to increase agricultural production in the Punjab on a profitable basis The competition is open to persons of all nationalities Government officials are also eligible

The first award which was due in 1929 was made in 1931 to Dr Barber, late imperial Sugar Expert, for his research work which resulted in the production of Coimbatore sugarcane. During the last five years no further awards were made in consequence of the lack of suitable entries The 1932 award has now been made by the Administrative Committee to Mr. Miller Brownlie, late Agricultural Engineer to the Government, Pubjab, for his invention of a slip strainer for increasing water supply derived from bores sunk in the open wells This strainer has the particular advantage that it is not affected by alkaline sub-soil water- a defect from which many of the earlier metal strainers suffer The new strainer is also less expensive than the former types in use It has been tested now for several years in a considerable number of wells and has given excellent results By its use, owners of well irrigated lands can increase the output of water from their wells Consequently, a larger area of land may be cultivated with wells so equiped and a greater range of profitable crops obtained

The 1935 prize was awarded by the Administrative Committee to R S L Jai Chand Luthra, I A S, Professor of Botany, Punjab Agricultural College, Lyallpur, for his new method of treating wheat seed in order to prevent attacks by a cryptogamic disease called Loose Smut. This disease is present in most regions of the province and causes considerable loss to farmers. The old method of treatment involved the use of a thermometer and skill and accuracy were necessary in raising water to the temperature sufficient to kill the spores of the disease inside the wheat grain and yet not damage the germinating power of the seed. Consequently this method was uncertain when carried out by unskilled workers By R. S. L. Jai Chand Luthra's method, the use of a thermometer is rendered unnecessary The wheat seed to be treated is merely soaked in water at ordinary temperature for four hours in the morning of a summer's day. The soaked grain is then spread in the sun until it is thoroughly dry. Experiments have shown that this treatment is effective in controlling the disease without damaging the germinative power of the seed. It can also be safely carried out by unskilled workers.

Entries for the next award should reach the Director of Agriculture, Punjab, Lahore on or before 31 December, 1938.

J L

BOOK NOTICES *

VACLAV ROSAM, *Zemedelska* (La pratique agricole). Uhrineves, 1936.

This work, the author of which is the Director of the Institute for the organisation of labour in agriculture in Czechoslovakia, contains the results obtained from a wide experience of over half a century in the field of agriculture In 460 pages, this concisely written and profusely illustrated book, supplies the Czechoslovakian farmer with all the information which is now indispensable for the solving of the various problems which may arise on his farm.

This work therefore, constitutes a very valuable guide to the practical farmer.

G R.

TZONSAROF K. R. *La mécanisation de l'agriculture bulgare en fonction de la structure agraire de la Bulgarie* 139 pp. Diss. Leipzig 1936.

Agriculture in Bulgaria, which from the point of view of its natural and geographical conditions is in a fairly favourable position, is characterised by the following peculiarities

(1) The greater part of the landed property is made up of small and medium-sized farms This system presents certain advantages in that it ensures social stability but is also detrimental in that there is a tendency for landed property to be increasingly broken up

(2) Bulgarian agriculture is characterised by its system of family farming, the work being practically exclusively carried out by members of the family, who are generally very numerous and have to be supported by the proceeds from the farm, in fact, there is no possibility of their being employed in any other branch of national activity.

(*) Under this heading are included short synopses of books received for review.

(3) For want of capital, and in debt owing to the world economic crisis, the buying power of Bulgarian agriculture began to decrease very considerably, and therefore agricultural equipment, which would be extremely useful, can only be obtained in an insufficient quantity and at irregular intervals. An inventory of the year 1931 gives a brief account of the degree to which this machinery is employed.

According to these figures, the total number of machines used in Bulgaria is:

Tractors	Number	1,617
Ploughs	»	370,000
Harrows	»	41,760
Rollers	»	2,824
Seed drills	»	7,131
Mowing machines	»	173
Horse rakes	»	324
Harvesters	»	7,829
Threshers	»	3,365
Sorting machines	»	7,370
Maize hullers	»	21,211
Simple machines for treating grain	»	149,687

The value of the capital invested in agricultural machinery and farm implements amounts to approximately 2,323 million Levas, which only represents 7 per cent of the total capital in Bulgarian agriculture.

As Bulgarian agriculture is based principally on the extensive cultivation of wheat, it might be asked whether some change in the present system would not be more advantageous to the economic-social structure and adjustment of the country. There are two prevailing view-points, the first advocates the organisation of agriculture, while the second demands a change in the produce now cultivated.

The author considers that a complete change in the present system of agriculture in Bulgaria should be advocated, in his opinion, only in this way will the pressing problem of Bulgarian agriculture be solved and the question of mechanisation satisfactorily settled. If, on the other hand, the second point of view is considered, and especially that of scientific organisation of agriculture, the first step should be the introduction of the use of modern implements and also labour-saving machinery. But such a complete mechanisation would clash not only with economic-social conditions but also with the practical possibilities of agriculture in Bulgaria.

H. J. H.

Neue Forschungen in Tierzucht und Abstammungslehre. Festschrift zum 60. Geburtstag von Prof. Dr. J. U. DUERST. Bern, 1936, Verbandsdruckerei A. G., 461 p.

This jubilee volume published on the occasion of the 60th anniversary of the birth of the Director of the Institute of Animal Husbandry and Veterinary Hygiene at the University of Berne, Professor J. U. DUERST, has been drawn up by his former pupils and colleagues. It is a very interesting collection of the studies carried out in all branches of present day animal husbandry. It is not easy, in a brief summary, to review all studies given in this work, and therefore only a general summary according to the different branches of animal husbandry will be made here.

The book opens with an article on the personality of Prof. DUERST and the important studies made by him on problems relating to genetics, heredity and also regarding the origin of the different breeds and species. Prof. **Frateur** (Louvain) analyses the genetic bases of the formation of the breeds of domestic animals; Prof. **Cardas** (Iassi, Romania) deals with the origin of Rumanian bulls; Prof. **Chiodo** of the Milan University with the origin of the black-spotted cattle of the Asiago uplands and Miss **Gromova** (Leningrad) discusses the development of the species *ovis* on the basis of craniological studies. Basing his studies on the bones and statuettes discovered in the north of Peru, Prof. **Hilzheimer** (Berlin) treats bulldogs, no longer existent in ancient Peru. Included in this group of studies are an article by Prof. **Magliano** (Messina, Italy) on Agrigento goats, and a work by Prof. **Hutt** (Cornell University, Ithaca) discussing the different chromosomes of poultry. A very important work by Prof. **v. d. Plank** (Utrecht University) deals with pathology and heredity; Prof. **Letard** of the Alfort National Veterinary School, irregularity and disease considered as ethnical characteristics.

A considerable number of works dealt with the relation between external environment, the aptitude of the animal and its constitution. Among these articles mention may be made of those by Mr. **Jean-Blain**, of the Lyon National Veterinary School, and Mr. **Devos** on the value of some French cattle breeds, by the costal angle method of Prof. **Duerst**. Prof. **Kisslovsky** (Moscow) has studied the relation between external environment and the aptitude of cows to development. Two very important works are dedicated to horse-breeding, one by Prof. **Maymone** (Rome) discusses the changes in type of English thoroughbreds, which have occurred in consequence of the training at high speed over short distances, and Dr. **Magert** (Munich) gives a brief account on the estimation of the work capacity of horses by means of mensuration and output tests. Dr **Krizenecky** (Brno) analyses the characteristics of prolificity common to the economic characteristics of the pig. Dr. **Podhrodsky** (Brno) gives a review of the production curves of animals, recording that the production of non-living matter follows a curve in the form of S Mr. **Schneiter** gives a summary of the objectives and work in the estimation of mountain cattle. Prof. **Kucera** (Brno) examines the problems of research work on constitution and internal secretion.

The volume also contains some studies of a more or less theoretical character on other different branches of physiology and concludes with a list of theses drawn up in the Institute of Prof. **Duerst** from 1910 to 1936 and the publications of Prof **Duerst** himself.

E. M.

Corso superiore d'igiene tecnica del latte alimentare — Published under the direction of the Milan Royal University, Milan, 25 April-5 May, 1936 Edizioni S. A. P. P. I. A., 660 pp.

This higher course of hygiene and dairying technique compiled by well-known experts of the Italian scientific world shows the importance of one of the greatest and most difficult problems of alimentation, and the value attached to this question. This course is based on vital questions of a scientific and technical character of national importance It represents the beginning of an extensive activity which is being organized in accordance with the instructions given by the Fascist Government and the relative laws passed. As the milk problem is closely connected with questions of a health and demographic order, this course is also of interest to the officials of public administrations charged with the sanitary control of this important food. It is obvious, however, that it is impossible to completely cover such a vast study in this preliminary course, comprising some twenty lessons, although they have been drawn up by well-known professors and supplemented by practical demonstrations and visits of considerable documentary value.

This preliminary, comprehensive and systematic course held in Italy is chiefly of informative value and is essentially directed towards a greater extension of Italian culture, with possibilities of considerable success as has been the case with the oldest and most celebrated institutions carried out on similar lines in other countries.

The higher course of hygiene and food technique comprises a wide curriculum of 17 lessons and 4 conferences concluding with the *Regulation of the hygienic control of milk intended for direct consumption.*

The first lesson is drawn up by H E. Filippo **Bottazi** of the Italian Academy and deals with the *Chemical and nutritive properties of milk*; this lesson includes the characteristics of milk, formation, of milk and its composition, chemical characteristics, protides of milk, lipides, glucides, vitamins, and enzymes, mineral substances (salt), milk as colloidal system, the digestion of milk, milk as a food, milk in infant feeding, milk as an adult food, economic importance of milk consumption, and the importance of dairying studies to Italy.

The second lesson prepared by Prof. Antonio **Pirocchi**, professor of Animal Husbandry and Hygiene, Director of the Experiment Station of Animal Husbandry at the Faculty of Agriculture of the Milan Royal University, discusses the *influence of the breed, environment and other factors on the production and yield of dairy cattle*, by considering both the foreign dairy breeds (Dutch, English, French and Swiss) and the Italian species (from the Val d'Aosta, the Lombardy brown alpine breed, Emilian, Forli breed, the black or Pisa breed, and the Garfagnina breed) and the factors which influence the quality and quantity of the milk mezological conditions, influence of the seasons, cattle breeds, individual aptitudes, lactation, time elapsed since calving, milking, sexual life, feeding and finally, morphological, physiological and genealogical selection functioning of the udder, rational feeding, improvement of mezological conditions

Prof Dino **De Nai** of the Institute of Veterinary Hygiene of the Milan Royal University, discusses the *Hygiene of dairy animals and their stabling*, and more particularly general aspects, objectives in animal hygiene, factors contributing to animal hygiene, feeding, movement, life of the young animals in the field, cleanliness of the stables in general, their situation, their position in the cow-house, cubic area, ventilation and lighting in the stable, types and characteristics of stables, construction material, fittings and services attached to the stable, hygiene of the animals, prophylaxis of contagious diseases, protective measures against tuberculosis, protective measures against mastitis, protective measures against contagious abortion

The fourth lesson deals with the *Control of the health condition of cattle*, drawn up by Prof. Dr Guido **Finzi**, President of the Faculty of Veterinary Medicine at the Milan Royal University; the following questions are discussed bovine tuberculosis, ovine tuberculosis, *Brucella*, its diagnostic and treatment, consequences of foot and mouth disease, mastitis, liver rot, and its treatment.

Mr Giuseppe **Soresi**, Chief of the Provincial Agricultural Inspection Service, Milan, in the fifth lesson speaks of the *Technique of hygiene in milking operations*, that is the hygiene of the premises, hygiene of feeding, and series of technical practices, preparation of the cow for milking, the milker and his preparation, receptacles for collecting the milk, the technique of milking and the professional instruction of the milker

The action of microbes on milk intended for consumption is treated by Prof. Enrico **Ronzani**, Director of the Institute of Hygiene at the Milan Royal University, in respect of pollution either endogenous or exogenous (caused by coagulative pathogenic micro-organisms, coagulative micro-organisms, micro-organisms which affect the fat content, micro-organisms which change the organoleptic characteristics, and organisms which affect the casein), the ebullition and pasteurization of milk is also discussed, practical suggestions being given.

Prof Celestino GOZZI, Director of the Laboratory of Bacteriology of the Commune of Milan, in the seventh lesson discusses the *Bacteriologic control of milk*, and in particular control of the number of germs, methods of numbering (direct, indirect, mixed), numbering of the leucocytes, the more common germs and difficulty in isolating them, daily bacteriological control of liquid milk

The eighth lesson is prepared by Prof Ernesto BERTARELLI, Director of the Institute of Hygiene at the Royal University, Pavia, and discusses *cold and heat in relation to the preservation of milk*; special attention is given to the ease with which the alteration and pollution of the milk takes place, means of preservation, action of cold on milk, application of cold, reactions of milk and the corresponding applications sterilization, ebullition, pasteurization

The *collection, filtration, refrigeration and transport of milk* are treated in detail in the nineth lesson by Prof Dr Elia SAVINI, Directeur of the Experiment Institute of Casein Products, Lodi, the following questions are especially dealt with production and utilization , production and requirements of milk, average daily consumption of milk in any city, milk as a food, liquid milk and the regulations regarding production filtration, refrigeration, "cooked" milk, production and pasteurization. The collection of milk comprises milk cans (metal, form, capacity and weight), vats and cisterns, cleaning the cans, centres for collection (object and duties, position, interior fittings, organization), treatment of central filtration, refrigeration, (capillary and fixed refrigerators), transport of the pasteurised and refrigerated milk.

The tenth lesson on the *chemical control of milk* is by Prof Angelo D'AMBROSIO, Chief of the Chemical Laboratory of the Commune of Milan, it discusses the reactions of normal milk, KLOTZ method, catalase test, chlorine content of milk, reductase test, determination of fats and residual dry matter, method for differentiating between pasteurized and raw milk, method of SCHERN-GORLI, of BENGEN, modifications made by D'AMBROSIO and the results obtained.

Dr Antonino SALA, Technical Director of the Milan Milk Centre, enlarges more particularly on the theme of *pasteurization of milk and pasteurizing apparatus* in the eleventh lesson.

In the introductory, the A refers to the history, the developments, the tendancies and the present object of pasteurizing milk, selection of milk, refrigeration, and re-infection, a very concise description is given of apparatus used in the pasteurization of milk (the first equipment to be adopted, the Danish pasteurizer, instantaneous pasteurization, plate apparatus, tubular apparatus), stassanization, the latest type of machinery used for the pasteurization of milk in the United States, the application of electricity to the process of pasteurizing milk, the pasteurization of bottled milk, by heating and stopping after filling the bottles General considerations

The twelfth lesson which supplements the preceding lesson, deals with *the preservation and distribution of pasteurized milk intended for alimentary use*, and is drawn up by Prof. Secondo REPETTO, Chief Chemist of the Genoa Milk Centre; the subjects included are. pasteurization and subsequent bottling, the question of bottles, sealing, washing, transport and delivery

In the thirteenth lesson, Prof Dr Alberto RAGAZZI, Health Officer Chief Doctor of the commune of Milan, Doctor in Hygiene of the Royal University, discusses the theme of *the organization and the hygienic control of milk*, that is standards and methods of stable control, collection and transport of milk, taking over the milk at the centre depot, control of the equipment of the depot, preservation of the milk pasteurized at the depot, distribution and preservation for sale, propaganda for increased consumption.

Dr. Provvido SACCO, provincial Veterinary Surgeon deals in the fourteenth lesson with the *production of milk for consumption*, that is: the upkeep of dairy animals, instruction for milkers, stables and their maintenance in a hygienic condition, utensils and receptacles, bottles, transport control and distribution, relative regulations.

The fifteenth lesson by Prof. Carlo FOA, Director of the Institute of Physiology at the Milan Royal University on the question of *How has the production and consumption of milk increased* ?, discusses the conditions which favour an increased production of milch cows, research work on the value of the proteins in soya in the feed of milch cows, direct methods suitable for increasing the direct consumption of milk

Advocate Casimir WRONOWSKI in the sixteenth lesson refers to the *technique of propaganda in favour of milk,* he discusses· the necessity for propaganda and methods of technique, propaganda in the schools, among sports enthusiasts and members of the " Dopolavoro ", by means of the newspapers, cinema, conferences, lessons and practical demonstrations; financial support of the propaganda, and conclusion

The seventeenth and last lesson is prepared by H. E. Prof. Gianni PETRAGNANI, General Director of Public Health, concerning the *problem of alimentary milk*, and gives special attention to the following questions food value of milk, propaganda in favour of milk consumption, milk industry and commerce, pathogenic germs found in milk, diseases transmissable by milk (Tuberculosis and braxy disease), medical control of milk, chemical control of milk, the problem of centralization, its consequences, means of conveying potable water in the central depots, economic utility of the centralization of the milk industry

Prof Alberto PEPERE concluded the Course with a brief speech.

The 17 lessons are followed by 4 conferences, the first being held by Mr Giuseppe TALLARICO, Parliamentary Deputy, on the theme· *Milk and forage crops* (differences in the composition of milk according to the influence of various factors, relation between the milk obtained and the fodder given to the cow, vitamins A and B and forage)

The second conference also by Mr. TALLARICO discusses the *value of green feeds*, and the qualities which should exist in green forage crops (thick foliage, young grass, appropriate fertilizing).

The third conference carried out by Engineer Angelo FERRARI, President of the National Fascist Federation of Agriculture and Alimentation discusses the *milk industry before the sanctions*· milk as a factor of resistance, transport possibilities, powdered milk, derivatives (butter, cheese, casein and its various uses).

In conclusion, the fourth conference of Prof. Dr Vittorino VEZZANI Parliamentary Deputy, Vice-President of the Corporation of Animal Husbandry and Fisherries deals with the *economy of the production of alimentary milk* (increase in milk production in the last 30 years, milk as a food, financial position and economy of farms devoted to the production of alimentary milk).

This series of illustrious names is a sufficient indication of the exceptional value of this volume, and on the other hand, the very numerous illustrations and graphs expound from an up-to-date point of view the technique of alimentary milk, and makes pleasant reading. Some chapters have been compiled with particular care and show all that modern technique offers in the field of dairying. This work is not only of very considerable importance to Italy but also from an international point of view, as it gives a concise and comprehensive picture of the problem of alimentary milk.

E. G.

CASABURI, V. — *Valorizzazione di pelli vive e morte* Stabilimento Industrie Editoriali Meridionali, Napoli, 1937, 118 pp.

The skins placed on the market are sometimes damages owing to infections, contagious diseases, abcesses, etc , affecting the living animal Their value is also diminished by brand markings, scars, etc , and by unskilled manipulation want of precaution in slaughtering, faulty salting, stains, incomplete drying, especially under the difficult conditions prevalent in East Africa

In this work, the A reports the various causes contributing toward a decrease in the value of skins skin diseases caused by animal or plant parasites, flies, insects, anthrax, etc , various wounds received by the animal in life brand marks, wounds caused by thorns, barbed wire fences, attachment chains in the stable, defects of a pathological nature, such as inflammation caused by the urine. Continuing his study, the author draws attention to the errors made, regarding the quality of the skin, at the time of slaughtering the animal, and the preservation and storage of the skins Various methods of preservation, by drying and salting are indicated An appendix is dedicated to the treatment of rabbit skins The method of control against the parasites is noted with indications as to prevention of damage

This study is both concise and very complete, the text is illustrated with numerous photographs and figures showing the different parasites and the damage they cause The Italian Government has widely distributed this book to all the organizations engaged in animal husbandry, agriculture and veterinary medicine, as well to State institutions whose activities lie chiefly in the colonies

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PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General works.

ASSEMBLÉE PERMANENTE DES PRÉSIDENTS DES CHAMBRES D'AGRICULTURE 5ᵉ Session Session extraordinaire. 3-4 février 1937. Compte rendu Amiens, Imp. nouvelle, 1937. 317 p.

CAMBRIDGE UNIVERSITY. Agricultural society magazine 1937. [Cambridge, W. Heffer, 1937] 68 p.

FARMERS AND SETTLERS' ASSOCIATION OF NEW SOUTH WALES Report of the proceedings of the forty-third annual conference held at the Railway institute, Sydney, on August 5th-7th, 10th and 11th 1936. Sydney, The Land Newspaper, 1936. 93 p.

NEW ZEALAND DAIRY BOARD. Twelfth annual report and statement of accounts 1935-36. Auckland, Whitcombe & Tombs, [1936]. 60 p.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND. The journal including the farmer's guide to agricultural research. v. 97 London, J. Murray, 1936.

SCHWEIZERISCHER LANDWIRTSCHAFTLICHER VEREIN Jahresbericht. 1936. Bern, Verbandsdruckerei, [1937]. 76 p.

YORKSHIRE AGRICULTURAL SOCIETY. Transactions for the year 1936. No. 94. [London, Watmoughs 1937]. 174 + 49 p.

General Agronomy.

SCHEFFER, F. Agrikulturchemie. Stuttgart, F. Enke, 1937. (Sammlung chemischer und chemisch-technischer Vorträge hrsg. von R. Pummerer. Neue Folge, Hft. 35-).
v 1. Boden. 1937. 113 p

Crops of temperate regions.

BRITISH COTTON GROWING ASSOCIATION. 32ND ANNUAL REPORT FOR THE TWELVE MONTHS ENDING DECEMBER 31ST, 1936. Manchester, [Sherrat and Hughes], 1937. 64 p

EMPIRE COTTON GROWING CORPORATION Report of the administrative council of the Corporation submitted to the 16th annual general meeting on May 25th, 1937 London, [Waterlow & Sons], 1937 66 p

FEDERAZIONE NAZIONALE DEI CONSORZI PER L'OLIVICOLTURA, ROMA. Le varietà di olivo coltivate in Italia. Relazioni delle Commissioni tecniche istituite dal Ministero dell'agricoltura e delle foreste per lo studio delle varietà di olivo e degli olii di oliva prodotti in Italia Roma, Tip. della Federazione italiana dei consorzi agrari, 1937-XVIII, 301 p. (Primo contributo alla conoscenza delle varietà di olivo per frutto da olio e da tavola coltivate in Italia).

KLAPP, E Taschenbuch der Gräser Ihre Erkennung und Bestimmung Bewertung und Verwendung Berlin, P. Parey, 1937 199 p

Tropical and subtropical crops

HUTCHINSON, J and DALZIEL, J M. The useful plants of West Tropical Africa, being an appendix to the Flora of West Tropical Africa London, Crown agents for the Colonies, 1937, XII, 612 p

GERRITSEN, D Java-Jute en Roselle Overzicht van de mogelijkheden voor cultuur en industrie Batavia, G Kolff, 1936 34 p
[Java-Jute and Roselle (Hibiscus Sabdariffa) Study of the agricultural and industrial possibilities]

LANDINI, P Il tè Gubbio, Soc tip «Oderisi»], 1937. 91 p (Pubblicazioni dell'Istituto di Geografia della R Università di Roma Serie A n° 5)

Horticulture

QUINN, G Fruit tree and grape vine pruning A handbook for fruit and vine growers working under climatic conditions prevailing in temperate Australia 8th ed Melbourne, Robertson & Mullens, 1936' 278 p

Forestry

HOUTZAGERS, G. Het geslacht Populus in verband met zijn beteekenis voor de houtteelt. Wageningen, H Veenman, 1937. V, 266 p
[Second title in English The genus Populus and its significance in silviculture]

Animal Husbandry

Bianchini B L'evoluzione della zootecnia attraverso i secoli Compendio storico e bibliografico [Roma, Ufficio nazionale consorzi pastori. Terni, Stab poligrafici Alterocca], 1930 315 p.

The herd improvement register year book of the Holstein-Friesian Association of America Madison, Wis, vol 8, [1936 Waukesha, Wis, Davis-Green Corporation] 565 p

Ubaldi, L Alimentazione razionale dei bovini da latte. Norme pratiche 2ª ed. Pistoia, « Arte della stampa », 1936 150 p

Zorn, W Die Aufzucht des Rindes Stuttgart, E Ulmer, [1936] 110 p (Tierzuchtbücherei hrsg von W Zorn)

Agricultural Engineering

Farm implement news buyer s guide v 46 Chicago, Ill, Farm implement news co, 1937 384 p

Agricultural Industries

Conférence lainière internationale. Warszawa Juin 1936. Krakow, Drukarnia Narodowa], 1937 65 p

Congresso nazionale armentario Roma 1937 Congresso nazionale armentario Confederazione fascista degli agricoltori Comitato nazionale lana Roma, 20-23 febbraio 1937 Relazioni e comunicazioni Roma Tip della Federazione italiana dei consorzi agrari, 1937]
[30 Pamphlets by different authors, in one cover

Die Brotindustrie Internationaler Kongress 1936 Leipzig Berlin, Verlag Mehl und Brot 1937, 166 p

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

PRESENT STATE OF ALEURITES CULTIVATION IN THE BRITISH POSSESSIONS (COLONIES, PROTECTORATES, MANDATED TERRITORIES) (*)

In an earlier series of articles on this subject (see this *Bulletin* Nos 3, 4 and 5, 1935), a brief outline was given of the results obtained from preliminary cultivation trials in the British Possessions of the Aleurites varieties yielding Chinese wood-oil. Later further information came to hand on the endeavours made with a view to acclimatising or developing the cultivation of tung oil trees in these territories In publishing these recent and not previously documented data, readers may possibly be able to obtain an accurate conception of the present state of this problem

A — American possessions.

1. — The Bermudas.

In 1928, some seeds of *Aleurites Fordii* were sown at the Paget East Experiment Station However, the trees did not succeed and these experiments were abandoned.

2 — British Guiana.

Aleurites cultivation in this colony is still in its infancy *A Fordii* and *A montana* seed were imported and young plants have been obtained *A Fordii* does not appear suitable for local conditions, however, a few specimens of both varieties have been planted in the lateritic soils of the Experiment Station situated in the north-west district The initial growth of *A montana* is sufficiently satisfactory It is still too early to judge future possibilities

3 — Jamaica.

Fifty years ago, some *Aleurites montana* plants were distributed in the regions situated at an altitude varying from 60 to 1,200 metres. Specimens were planted in soils of varying composition: alluvial lands, soils rich in lime, etc

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(*) Compiled from information supplied by the different Departments of Agriculture in the British Possessions to the Section of Tropical Agriculture at the International Institute of Agriculture, Rome

But results were poor and the development of the trees very weak; the specimens planted in dry zones completely disappeared.

In consequence of this setback, it has been decided to abandon the cultivation of *Aleurites*.

4. — Trinidad and Tobago.

Experiments on *Aleurites* cultivation are only of recent occurrence in Trinidad and Tobago. These trials, carried out at the St. Clair Experiment Station, Port of Spain, began in 1930-31. *A Fordii* and *A. montana* were the varieties tried.

The experiments with *A. montana* gave successful results, while those carried out with *A. Fordii* were a complete failure.

The seeds were first sown in a nursery, then the young plants were put into pots and finally transplanted to their definite position; as regards cultivation work, this was limited to harrowing and hoeing; no fertiliser is applied.

The trees flowered at the end of 19 months, but as yet, no female flowers have been noted in the florescences The trees are still too young to give any indication as regards their future possibilities.

B. — African possessions.

1. — Gold Coast.

Aleurites cultivation in the Gold Coast is of recent introduction. The first cultivation trials were carried out at the two experiment stations of Asuansi and Aburi in 1931.

(a) *Experiments carried out at Aburi*

The *Aleurites Fordii* and *A triloba* varieties were used in these experiments The plantations have a surface area of only 0 25 acres and are established on gravelly lateritic soil. The seeds were first sown in the nursery, and the young plants were afterwards transplanted Cultivation work is limited to hoeing, green manures are applied

In the beginning, the plants had a rapid growth, which later gradually diminished, so that only one tree produced fruit at the end of two years; the seeds were imperfectly formed.

Consequently, *Aleurites* may only be cultivated as an ornamental tree and not as an oil-yielding plant.

(b) *Experiments made at Asuansi.*

These trials were carried out with the *Aleurites montana* variety only.

The plantations were established on newly cleared land. The seeds were first sown in the nursery and later the young plants were transplanted. Cultivation work is limited to hoeing.

At first the plants showed a satisfactory growth; five flowered in 1934, but afterwards died off. At present, only a few trees remain. The trees never produced any fruit.

2. — Kenya.

(a) *History of Aleurites cultivation.*

Aleurites montana and *A. Fordii* seed were introduced into Kenya for the first time in 1922. Seeds of the former variety were obtained from Hong Kong, and the latter from Hankow.

Later, chiefly *A. Fordii* seeds were sown and consequently, this review will deal practically entirely with this variety

The seeds were sown in August, 1922 at Nairobi at an altitude of about 1700 metres; in May 1923, the trees had attained a height of from 1 metre to 1 75 m. In 1926, growth had increased up to 1 75 m to 2.25 m. Some specimens, however, remained stunted. The trees were attacked by an *Aspidiotus* which was controlled by spray preparations.

In 1927, two of the trees produced fruit and the fruits were forwarded to the London Imperial Institute for examination Results showed that the oil obtained from these fruits was very similar to the Chinese oil.

In consequence of these satisfactory results, it was decided to further increase the cultivation of *Aleurites* in Kenya, and in 1928, additional supplies of seed were forwarded from the Royal Botanic Gardens, Kew, and also from Florida. During the two following years, considerable quantities of fresh seed were dispatched and distributed among some of the planters.

In 1932, two new lots of seed collected in June and July, 1931, and in June and July, 1932 were sent to the London Imperial Institute. Examination of the seeds gave the following results.

The seeds were clean, dry, sound and without any trace of attacks by pests and diseases Their characteristics corresponded to the average observed for this variety

The quality of the oil was satisfactory

The Department of Forests and the Department of Agriculture forwarded questionnaires to the principal planters in the Colony in order to obtain information on the results of the trials carried out In general, the replies received may be considered as very satisfactory.

(b) *Surface area of the plantations.*

According to the replies received, the plantations of *A Fordii* in Kenya cover an area of approximately 500 or 600 acres; 400 acres are situated in the Trans Nzoia district The largest plantation is established at Longleat Estate, Kitale; this plantation is approximately 100 acres in area.

(c) *Climate.*

The most suitable districts for *Aleurites* cultivation in Kenya appear to be those situated at an altitude of about 2,000 metres, with annual precipitations varying from 1,000 to 1,250 mm.; in general, at altitudes over 2,150 m., the growth of the trees is very poor; when the average annual rainfall is under 1,000 mm., the trees tend to die off in the dry season.

Regions at altitudes under 1,800 metres are not at all suitable, even in the districts, such as Kaimosi in particular, where the annual rainfall attains 1,500, 1,750 mm. and over.

In many districts, the planters complain of leaf fall during the rains. The best development in the dry season is obtained in those districts where the rainy season is sufficiently good to afford a requisite storage of moisture in the soil

Strangely enough very heavy rainfall appears to be detrimental to the successful cultivation of *Aleurites* in Kenya, while in the Mississippi region where the annual precipitations attain approximately 1,450 mm these trees show an excellent development

(d) *Soils.*

There is little information available on the adaptation of soils in Kenya to the cultivation of *Aleurites* Poor soils give unsatisfactory results, this is also the case with black cotton soils, although in this instance, poor results may be due to the climate The plantations in the Trans Nzoia region are established mainly on sandy clay soils resulting from the decomposition of gneiss and schists The trees planted on the very fertile chocolate-coloured soils of Mont Elgon and the Kiambu region did not show any better development than those grown in poorer soils

(e) *Growth*

All planters are in agreement as regards the variation in the rate of growth of *Aleurites*

Many planters have noted that the trees left in the nurseries have a better development than those which are transplanted Probably the superiority of the trees left *in situ* is due to a more carefully selected position, better soil, and perhaps the provision of water during the dry season

The oldest trees in the Nairobi arboretum are now 13 years and have attained a height which varies from 1 90 to 6 50 metres While some of these trees show an excellent development, the remainder have more or less died off This may have been caused by a succession of several dry years, but more probably partly by diseases

Some of these trees bear fruit fairly regularly, but normally have only a poor production

In other regions of the colony, the rate of growth is extremely poor, on an average, the trees increase by thirty centimetres a year.

The highest rates of growth were reported at Muringato, Nyori (altitude 2,000 metres, annual precipitations 950 mm), in this locality, the trees planted in 1929 attained an average height of 2 70 metres in 1934, the tallest tree having 5.40 metres. These trees were perfectly healthy and fructified fairly abundantly during the year.

The highest trees of Longleat Estate, Kitale attain 3 metres.

These were planted in 1931.

Mention has already been made of certain trees which suffer from an excessive defoliation chiefly during the rainy season. It may be possible that this defect is caused by a physiological disease known as " bronzage ".

(f) *Cultivation methods*.

The methods of cultivation carried out in Kenya differ entirely from those employed in the United States. Thus manures are only occasionally applied in the plantation ditches, and practically no attempt has been made to study the influence of cover crops on growth. In Kenya, on the other hand, an attempt was made to plant maize in association with *Aleurites* which appears to have caused some damage of a physical and physiological order to the plantations.

Some planters employed green manures, but it seems that the deep working of the soil may damage the root system of *Aleurites*, which is very spreading.

(g) *General conclusions*.

The experiments carried out to date in Kenya have shown that, generally speaking, *Aleurites Fordii* is not suitable for the conditions prevalent in the Colony. The reason for this is not clear; in fact, the climate appears to resemble – with the exception of the absence of snow and frosts – that of certain regions in China where this tree grows Possibly the trees suffer from the brevity of the hours of insolation. in Kenya.

Figures are not yet available for the yields in fruits in the plantations which have been established at least five years The yields of isolated trees, arrived at the period of fructification, are not very encouraging, but, on the other hand, these trees for the greater part are growing in regions which are not very suitable for *Aleurites*.

The general standard of *Aleurites* cultivation is low, an experimental plantation of 10 acres has been established at Kitale with a view to ascertaining whether a more intensive cultivation, together with improved methods of cultivation, may produce better results.

It is considered that the marked differences in development observed in Kenya may be due to genetic variations noted in other countries. Grafting trials are being attempted.

In any case, taking into consideration the results obtained up to date in the experimental plantations, the establishment of new plantations of *A. Fordii* is not advisable; however, it is quite possible that within a few years, the results obtained in the Trans Nzoia region may make this assertion less positive.

It is considered that more extensive trials in the cultivation of *A. montana*, *A. moluccana*, and perhaps *A. cordata* should be carried out.

The few experiments already made have shown that the Kenya climate is more suitable for *A. montana* than A. *Fordii*. This is shown by the *A. montana* planted in the Kisfim grove, in the Kakamega forest, which at two years old had attained a height of approximately 4 metres and were in flower. The Kisfim grove is situated at an altitude of 1,700 metres, and the average annual precipitations amount to 1,750 mm.

Three or four *Aleurites montana* are also to be found in the Nairobi arboretum. These trees have an excellent appearance and fructify well.

The information received from other regions of the colony indicate that *A. montana* thrives exceedingly well where *A. Fordii* vegetates and dies off.

An *A. moluccana* specimen planted in 1927 at the Scott Agricultural Laboratories, Nairobi, grew vigorously at an altitude of approximately 1,900 metres with annual precipitations of 1,000 mm. At 8 years old the tree had attained a height of about 6 metres and produced an abundance of fruit. The data obtained from other regions indicate that there are still other *A. moluccana* trees showing an excellent development even in mediocre soils. Considering its exuberant growth, this variety could possibly be used for grafting *A. Fordii*.

The cultivation of *Aleurites cordata* is not considered possible in Kenya.

3. — **Mauritius.**

Some years ago, the cultivation of *Aleurites Fordii* in Mauritius Island was begun. At first, the trees grew well, but later were damaged by cyclones and hurricane winds which consequently caused the Agricultural Services to abandon all attempts at the propagation of this variety in the Island.

4. — **Nyasaland.**

Cultivation trials on *Aleurites* in Nyassaland began in 1928. *Aleurites Fordii* and *A. montana* were the varieties adopted. As a general rule, the trees of the first variety succeed better at an altitude exceeding 1,150 metres, while those pertaining to the latter variety prosper chiefly at an altitude under 1,150 m. For both varieties the average annual precipitations must amount to 900 to 1,400 mm. The trees appear to be adaptable to different soils, but, prefer deep, clayey, red soils with a good drainage. At the time of planting, circular ditches are dug, 60 cm. in depth, and 60 cm in diameter. As a rule, cultivation work is limited to the sowing of cover plants between the rows of *Aleurites* and the arrangement of the ground in terraces as a means of controlling erosion. Indore compost, farm manure, wood ash, at the rate of 3 tons, 10 tons and 3,000 lbs. respectively, are utilised as fertilizers every two years. The seeds are always sown in nurseries, the young trees being later transplanted to their permanent position. *A. Fordii* trees begin to bear fruit at the end of four years (first fructification in 1932) and *A. montana* at the end of two years (first fructification in 1933). The fruits are picked up from the ground when they are dry. The flowering season starts at the beginning of October and fructification towards the end of the same month. Yields in fruits vary very considerably; from 1 lb. to 33.5 lbs. of fruit per tree. In the following table the characteristics of the fruits obtained are noted according to the analyses made at the London Imperial Institute.

	Aleurites Fordii	*A Montana*	*Montana* (fruits from a special tree)
Total weight of the fruit in gms . .	24 00 to 35 66	—	—
Number of seed per fruit	3 22 to 4 40	—	—
Weight of the seed in gms	3 05 to 4 24	2 59	2 68
Percentage of tegument	42 90 to 58 10	—	—
Percentage of seed	41 90 to 57 10	—	—
Percentage of kernel in the seed . . .	56 10 to 63 40	61 90	63 10
Moisture content of the kernel	4 40 to 5 30	5 10	5 80
Oil content of the kernel	49 80 to 57 00%	60 70 %	61 20 %

It is evident from the experiments made up to date that excellent results can be obtained from *Aleurites montana* under the conditions described earlier in this article. On the other hand, the *A. Fordii* trials were less successful; on the whole yields were poor and the trees were attacked by noxious insects or leaf diseases.

5. — **Uganda.**

The first experiments in *Aleurites* cultivation date back to 1929. At this period a small consignment of *A. Fordii* and *A. montana* seed was received from the Amani Station. The seeds were sown at Kampala and nine specimens of *A. Fordii* and one of *A. montana* resulted. In the beginning, the plants grew well, they attained a height of 1.20 m. in two years, but later started to decline and are now in a much poorer condition than in 1932.

The largest amount of *Aleurites Fordii* seeds were introduced into the country from Kenya in 1931. These were sown at Kampala, Bukalasa and Serere The seeds germinated badly. Only 26 plants were obtained out of of the 174 seeds sown at Serere, at Bukalasa, where probably the same amount of seed was sown, 25 plants resulted. At present the Serere trees have only attained a height of 60 cm.; at Bukalasa and Kampala, the plants grew well to begin with; in 1933 they were already 60 cm. high; but subsequently their development stopped and at present their height is only 75 cm.

In June, 1933, *A. montana*, seeds were sown at Serere; these seeds resulted in plants whose growth was as equally unsatisfactory.

The experiments were carried out on soils of different types: at Kampala on heavy clay soils; at Serere the experimental plantations were established on a hillside with flinty soil; at Bukalasa, the plantations were also situated on a slope in the regions having fertile soil.

As all the experiments carried out were unsuccessful, it appears to be definitely established that the climatic conditions of these regions (average maximum temperature, 27.5 ° C; average minimum temperature, 15.5° C average annual rainfall, 1,000 to 1,250 mm.) at an altitude of 1,200 m. are entirely unsuitable for these varieties.

A certain number of *Aleurites triloba* were also extensively planted. This variety, of a more tropical nature, could perhaps be utilised for obtaining drying oil; some trees established at Entebbe have already produced fruit.

6. — **Rhodesia.**

Experiments in the cultivation of *Aleurites Fordii* and *A. montana* have been carried out in Northern Rhodesia.

a) *Cultivation trials with* A. Fordii.

The Department of Agriculture has undertaken experiments in the Abercorn and Mazabuka regions.

Specimens were planted at Abercorn five years ago (in 1931); the experiment plantation covered a surface area of two and a half acres, of which only half an acre was irrigated. The germination and growth were satisfactory during the first year. Consequently, the trees in the non-irrigated zone withered every year during the dry season. The trees in the irrigated plot showed a slightly better development, the highest tree at present attains a height of 1.50 m. This experiment was made in a zone situated at an altitude of 1,650 metres, with an average annual rainfall of 1,150 mm. from September to May.

At Mazabuka, trials were carried out in a region at an altitude of 1,050 metres, the average annual rainfall occurring from September to May amounting to 770 mm. Specimens were planted three years ago (in 1933). This experiment was a complete failure; the trees withered every year during the dry season, and at present scarcely reach a height of 0.65 m.

(b) *Cultivation trials with* Aleurites montana.

These experiments were successful. The trees planted four years ago at Mazabuka have attained a height of approximately 2.30 metres and flower profusely. It should be noted, however, that germination was difficult.

7. — **Anglo-Egyptian Sudan.**

According to the reply of the director of agricultural research in Anglo-Egyptian Sudan, no attempt is made at the cultivation of *Aleurites* in this country.

8. — **Tanganyika.**

Acclimatisation trials with *Aleurites* in Tanganiyka were carried out in the uplands of the south, in the Iringa Province and at the Amani Station.

(a) *Experiments carried out on the uplands of the south*

These trials began in 1927; during the 1927-32 period, seeds of *Aleurites Fordii* and *A. montana* were distributed to the European planters of the Northern, Tanga and Western Provinces. According to information obtained, these trials failed everywhere, except in the Western Province. It is considered that the unsuccessful results are partly due to faulty cultivation methods, chiefly in transplanting the specimens from the nurseries to the plantation; but, taken as a whole, this failure is so definite, that it may be inferred that soil conditions are unsuitable.

In the Western Province, the situation appears to be better Near Uvinza there is a plantation of approximately 50 acres, established in 1932 which is in a flourishing condition The trees have a height of 1 50 to 2 m ; some specimens even attain a height of 2.5 metres. They are healthy, flower abundantly and produce fruit Consequently, it is considered that the results obtained are sufficiently promising to continue cultivation trials on a fairly large scale

(b) *Experiments carried out in the Iringa Province.*

Trials were initiated in 1927-28. Seeds of *Aleurites Fordii* were distributed to the Mufindi, Dabaga, Nguruhe, Ifunda and Lumpembe regions

In general, the results were mediocre or even nil. In the Mufindi region there are still some trees to be found in the tea zone, they are about seven years old and attain a height of two metres; in 1936, one or two flowers were seen

At Dabanga no living trees are now to be found.

At Nguruhe the results were also negative; two trees are still in existence on the Egger farm, they are 2.50 metres in height, but are not in a satisfactory condition

At Lumpembe none of the trees obtained from the original seeds are still living.

In 1930, experiments were again begun Mr. HAYWARD sowed seeds taken from the two varieties *A Fordii* and *A. montana* near Njombe The results were not successful and, at the end of several years, none of the trees had attained a normal height

A second series of experiments was commenced at Lupembe in 1931, at the end of four years, the trees did not appear to show any future possibilities In 1934, heavy applications of fertilizers were tried, immediately renewed development took place and the trees flowered and bore fruit

In 1933, *A. montana*, seeds were sown at Iheme Only four seeds germinated; the plants were transplanted in January, 1934 At present, the trees have only grown one or two feet

From the above, it would appear that there is no possibility of any future for *Aleurites* in this region. It is true that they are treated as forest trees as in China. The only positive results obtained were in consequence of heavy applications of manure.

However, mention should be made of one case which was completely successful. The case of a five acre plantation situated 120 miles east of Kigoma and established in 1932. An excellent method of plantation was followed. The plants were placed in ditches 90 × 120 cm. filled with soil rich in humus. After wards no special cultivation work was carried out, but the trees have now attained a height of 2.50 m. to 3.30 m., flower profusely and produce fruit. The Department of Agriculture of Tanganyika Territory has requested the despatch of seed of Chinese origin to this zone in order to carry out further trials.

(c) *Experiments carried out at the Amani Experiment Station.*

Trials commenced in 1928. Plantations were established at altitudes varying from 500 m. to 1100 m. The plants still exist, but have not shown much development. One or two, however, have produced a few flowers.

In 1929, *A. montana* seeds of Chinese origin were sown in nurseries, two plants which were kept in the nursery had a normal development and flowered freely at the end of three years and have now attained a height of 3 to 4 metres. The transplanted specimens grew equally well. The seeds obtained from the local trees are sown every year and show a good development.

This trial cultivation is important as English markets accept *A. montana* oil quoting 95 per cent. of the price paid for *A. Fordii* oil.

9. — Togo (British Mandate).

Experiments in *Aleurites* cultivation were taken up in 1931 These trials only included the *Aleurites montana* variety and were carried out at the Kpeve Experiment Station. The position of the plantation was chosen on rich alluvial soil, the seeds were sown in the nursery and the young plants transplanted, cultivation work was limited to digging in occasionally grass growing wild; no fertilizers were applied. The results obtained were very poor, in fact, the majority of the plants died off during transplanting. Only one tree flowered, but did not bear fruit.

10. — Union of South Africa.

In seeking a species suitable for growing in the arid soils of the subtropical regions, South African farmers turned their attention, for the first time, to *Aleurites*. But it has not yet been ascertained whether *Aleurites* is actually suitable for these conditions, although it has been proved that it flourishes in more fertile and well cultivated soils. At present, therefore, it is considered that *Aleurites* is particularly indicated in the lower and middle Transvaal and in Natal, where land is cheap and where there is no question of being able to produce more perishable products.

(a) *Area under cultivation.*

There are some fairly large plantations on the coast of Natal and Zululand, in certain regions of Swaziland and in the north-east of the Transvaal.

A trial plantation was also established at Uitenhage in Cape Province, but no information is as yet available regarding the results obtained. At the Rhodes fruit farm, which is situated at Groot Drakenstein there is a fairly extensive plantation and the trees appear to have become well adapted to local conditions.

According to data received, 203 acres appear to be under *Aleurites* cultivation, but the exact figure must be higher as information regarding all the plantations is not available.

It is estimated that there are a little over 20,000 trees cultivated, including 2,000 seedlings in the nursery ready for transplanting. The age of the trees cultivated ranges from one to four years, however, it may be considered that in the Union there are some trees which are at least six years old.

(b) *Aleurites species cultivated in South Africa.*

The best known variety in the Union is *Aleurites moluccana*, in fact, this variety has been cultivated for some considerable time as an ornamental tree in the streets of many towns on the Natal coast and in east Transvaal as a windbreak and garden tree. Consequently, some excellent specimens are to be found at Barberton and Durban.

The cultivation of two other varieties, *A. Fordii* and *A montana*, was also introduced. However, *A montana* is not so widely diffused as the former variety, owing to its greater susceptibility to cold and frost.

(c) *Soil and climate.*

According to information received it appears that *Aleurites* plants grow well in well-drained soils. The best results have been obtained with deep, sandy and slightly clayey soils in those regions where the annual rainfall amounts to or exceeds 750 mm , and where light frosts occur.

(d) *Multiplication.*

Three methods of propagation are adopted in the commercial plantations:

(1) Sowing directly in the plantation. This method is impracticable in the Union owing to costs, losses caused by the depredations of locusts and termites and the difficulty of providing the young seedlings with the constant attention required. This method is only employed in small plantations.

(2) Sowing in the nursery. The seedlings are first set in beds 10 to 15 cm. apart in all directions, they are left in the beds until attaining a height of 22 or 30 cm. The seedlings are then replanted in rows one metre apart, the plants being set 40 cm. apart. Here they are left until the winter. They are then transplanted, during the period of arrested vegetation, when the plants have shed their leaves.

By this method, it is possible to plant whenever climateric conditions are favorable.

The method is also suitable when fresh seed is imported from China or U. S A., which generally arrive in the Union in January or February. The seeds lose their germinal power very rapidly; by setting them immediately in the nursery beds, and later transplanting the young seedlings in spring there is less danger of loss.

(3) Sowing directly in rows in the nursery, without preliminary setting in beds. This method is advisable whenever conditions allow, as the supplementary costs required in preparing the seeds-beds and carrying out the first transplanting are avoided. Satisfactory results are obtained in the majority of cases.

(e) *Establishment of the nursery.*

Whenever possible, a sandy soil should be chosen; particular attention should also be paid to watering the plants, especially during the three months of the germination period. To obtain a good germination, the ground should not be excessively watered, as this favours rotting of the seed and the development of mould.

Seed collected in March-April germinate better if sown as soon as possible after harvesting *Aleurites* plants sown in spring attained a sufficient development to be transplanted at the end of summer or at the beginning of winter during the period of arrested vegetation

It is advisable to cover the nursery beds with a light mulch in summer in order to temper the heat of the sun

(f) *Selection.*

At the Nelspruit Subtropical Horticultural Research Station it was possible to recognize among the young plants several distinct types showing variations in bearing, growth, the characters of the leaves and the fruits produced Up to the present efforts have been made to maintain and reproduce desirable types by sowing seeds obtained from good parent plants Grafting trials have been carried out recently, always at the Nelspruit Station It was found that the grafting of seedlings during the first season of their existence was much easier than with older trees, as the bark of the latter becomes thicker. According to observations made at this Station the seedlings obtained from seed sown at the end of winter, in July or August (southern hemisphere) are suitable for grafting towards the end of summer, in January or February The scions are taken from that year's shoots, which are sufficiently lignified in February Great care should be taken to ascertain that the lignification is complete and that the bark of the subject is easily detached, these conditions were obtained during the last fortnight of February at Nelspruit

(g) *Establishment of the plantation.*

For young plantations, it was ascertained that the best spacing between the trees would 8 25 m. in all directions. For the purpose of economy it was proposed to plant at distances of 4 × 8.25 m. with a view of removing one out of every two rows of trees when they had developed their crown, so that the trees should be 8 25 m apart in all direction when in full bearing. In transplanting the trees the following precautions were found to be advisable:

(*a*) to transplant during the pause in vegetation; (*b*) to cover the stripped part of the trunk of the young trees with grass or a sheet of paper; (*c*) to water the trees regularly during the dry season.

(h) *Manuring.*

Little information is available regarding the manure required by *Aleurites.* However, a system intended to maintain the fertility of the soil at a reasonable cost would appear to give good results. In this respect, the utilization of cover plants such as Sunnhemp appears most indicated.

(i) *Pruning.*

Aleurites requires little pruning as the fruits are borne on the terminal branches Pruning is limited to shaping, removing dead branches or those attacked by disease, and superfluous branches

(j) *Harvesting the fruits.*

The fruits are left to ripen on the tree and fall to the ground. As *Aleurites* fruits are not "perishable", they are allowed to remain on the ground until labour is available to collect them. In the Union, as rains often occur during this harvesting, care is taken to avoid collecting moist fruits which would ferment and, in consequence, affect the colouring of the seed and result in a poor quality oil Occasionally, termites which abound in S Africa, cause damage to the fallen fruits and necessitate a prompt harvesting These pests do not attack the seed, but only the pericarp of the fruit, this results in a product of poor appearance, with consequent loss in sales value

(k) *Yields*

According to information available, the age at which the trees begin to fructify varies considerably This may be seen from a case reported by Drummond in Natal of four trees two months old which were already in flower. Usually, the trees commence flowering profusely at about two and a half or three years; in these exceptional cases they even bear fruit At the Rhodes Experiment Farm, several trees approximately five years old, already produce an average of 120 fruits each At Pilgrims Rest, Transvaal, some three and a half year old trees and the majority of trees four and a half years old each produced 7 or 8 fruits. Finally at Stegi, in Swaziland, where there are approximately 3,000 two-year old trees, practically all were in flower and 70 lbs. of fruit have already been collected from these trees The results obtained in South Africa, therefore, differe little from those attained in America: it may be accepted that the trees commence to bear fruit at 4 years, but they must be from 6 to 10 years old before arriving at production on a large scale.

(l) *Quality of the oil.*

The Division of Plant Industry of the Department of Agriculture of the Union forwarded samples of local seed to the London Imperial Institute for analysis. One of these samples was taken from the Port Dunford plantation in Zululand, and another from Bushbuckbridge in the Pilgrims Rest district, Transvaal.

In both cases, the results of the analyses were favourable. The oil content of the seeds of the first sample was normal for the variety; the cold drawn oil had all the characteristics of a good Chinese wood-oil.

The fruits of the second sample contained the normal number of seed, characteristics were normal, and the quantity of oil produced was equal to that obtained from Florida fruits. The quality of the oil was satisfactory, the composition was very similar to the Chinese wood oils of American or Chinese origin and met entirely the requirements of the British Engineering Standards Associations. For the purposes of documentation, some of the results obtained from the analyses of fruits of the second sample are herewith reproduced.

Composition of the fruit:	
Average weight of the fruit	36.73 gm.
Average number of seeds per fruit	4.42
Average weight of the seeds	4.59 gm.
Pericarp of the fruit	44.2 %
Seeds	55.8 %
Tegument of the seed	34.9 %
Kernel	65.1 %
Oil content of the kernel	60.25 %
Oil content of the whole fruit	21.9 %
Analysis of the oil:	
Refractive index	1.5189
Acidity (in mm. of KOH)	2.32
Heat test	10.5
Iodine index	173.2

The heat test and the iodine index were obtained according to the methods by the British Standards Institution Specification.

(m) *Pests and diseases.*

The following are the diseases and pests most frequently found:

Curculio Beetle. — This insect hollows out small channels in the young green stems appearing in spring, and thus causes withering and breaking off.

Termites. — Termites cause considerable damage to the bark of the trees and the pericarp of the fruits fallen to the ground in newly planted areas.

Locusts. — In the nurseries, locusts sometimes cause considerable damage by destroying the foliage.

Coleopters. — Among the coleopters, the *Greedy scale* is most commonly found on *Aleurites*, especially in the nurseries. *Ceroplastis* species are also found on *Aleurites*.

Fungus causing leaf spot. — Leaf spot is caused by a species of *Macrosporium* which makes its appearance towards the end of summer, in the form of brown spots on the leaves

(n) *Conclusions.*

The experiments carried out up to date in the Union show that there are regions in South Africa suitable for *Aleurites cultivation*, but it remains to be seen whether cultivation on a commercial scale would be a profitable enterprise

II. — Zanzibar.

Cultivation experiments with *Aleurites Fordii* began at Zanzibar in 1929. The plantations were established at an altitude of approximately 1,500 m. in Kilimanjaro These trials were unsuccessful and it now appears to be quite definite that this region is not suitable for the cultivation of this variety

C — Asiatic Possessions.

I — Ceylon.

Experiments on the cultivation of *Aleurites Fordii*, *A. montana* and *A. cordata* were carried out successively at Ceylon

(a) *Cultivation experiments with " Aleurites Fordii "*

These trials began in 1917, the results were unsuccessful showing that it is impossible to cultivate this variety on a commercial scale in Ceylon

(b) *Experiments with " Aleurites montana "*

These trials were, and still are, being carried out at the Peradeniya Experiment Station. They commenced in 1930-31 Well drained ground arranged in terraces was selected for the plantation, the seeds were sown in the nursery, at the moment of transplanting, the plantation holes were filled with earth taken from the upper part of the ditch and farm manure To each of the young trees, 1 5 to 3 lbs of Nicifos No 2 was also applied

The growth was rather poor owing to the sterile soil In 1934, twenty five trees flowered: 8 in February, 12 in March and 5 in April The greater part of the inflorescences bore only male flowers however, a few female flowers were noted giving hopes of a possible fructification. In fact, fruits did form, but the majority fell during the dry period; only four trees bore fruits which arrived at maturity (one fruit each).

In 1935, growth continued to be fairly poor. It was seen that the trees began to suffer from " bronzing ". An attempt was made to employ zinc sulphate in the control of this attack, but up to the present without any apparent result.

In order to increase the fertility of the soil, an application of ammonium sulphate was also made; the results are not yet known.

During the year the presence of *Fomes noxious* on the roots of *Aleurites* was reported for the first time It is thought that this fungi has spread to these trees from the shoots of jungle plants, or rubber or tea plants This fact emphasizes the necessity of carefully removing the old roots of rubber or tea plants when it is intended to establish new plantations on former rubber and tea estates

Finally at the Peradeniya Station young *Aleurites* were received which were killed by the rotting of the collar. This rotting is found chiefly on plants insufficiently shaded.

It should be noted that an old tree growing at the Station for 13 years, produced 358 fruits in 1933, which fact proves that it is not impossible, in spite of the poor results obtained during the last experiments, to obtain normal fructification. The fruits contained an average of three seeds each; the weight of the fresh fruit varied from 75 to 111 grams

It may be concluded from the preceding observations that *Aleurites montana* cultivation might possibly be extended in Ceylon, on condition that the soils are sufficiently fertile, that the young plants are not set near old root stocks, possible hosts of noxious fungi, and that a suitable shade is provided in the early stages of plant growth

(c) " *Aleurites cordata* " trials

These trials were undertaken quite recently (in 1935) Seeds imported from U S S R were sown. The plantations were established on ground specially arranged in order to prevent erosion As the young plants have only now been transplanted, the success or failure of these experiments cannot be foreseen.

2. — Federated Malay States.

In Malaya, cultivation trials with *Aleurites Fordii* and *montana* were carried out. *Aleurites moluccana* grows wild in this Colony

(a) " *Aleurites Fordii* " *experiments*

These trials began in 1914. They were carried out at the Kuala Lumpur Station and definitely proved that this variety is not at all suitable for the tropical climate of this country.

(b) " *Aleurites montana* " *trials*

These experiments commenced in 1923 in the Serdang government plantations. At present experiments are also being made at the Tanah Raton plantation in the Cameron Highlands

The seeds were obtained from the Hong Kong Department of Botany and Forests. The seeds were sown in the nursery in small boxes. Germination began at the end of six weeks and continued during three months. When the young plants had grown sufficiently they were transplanted to bamboo baskets, and later transplanted to their permanent place in the plantation. The plantation was established at the foot of a hill; spacing was 6.50 m. in all directions. Transplanting took place in March, 1925. At the same time a cover of *Calopogonium mucunoides* was established.

Development was at first very rapid, especially in the case of the trees planted at the lowest level of the plantation. One tree flowered in March, 1926, and it was possible to harvest some ripe fruits in April, 1927. Flowering and fructification continued so that in June, 1928, already 35 lbs. of seed were collected.

There are usually 2 to 3 female flowers to each inflorescence. Considerable variation in the shape of the leaves was noted. Some trees had heart-shaped leaves, while others had five-lobed leaves. The fruits generally contained three seeds

Later, the growth of the trees diminished considerably and yields became negligible as the trees were periodically attacked by insects or different fungi. Consequently, the trees lose their leaves periodically owing to the attacks of insects pertaining to the *Psychidae* species (chiefly *Mahasena corbetti* and *Nygmia corbetti*). The presence of *Boarmia transcissa lineataris* Wlk. on the trees was also recently reported.

Experiments in grafting *Aleurites montana* on to *A. moluccana* were also carried out.

However, according to the latest information received from the Department of Agriculture, Kuala Lumpur, the experimental plantations of *Aleurites montana* are in a very precarious position

(c) *Cultivation experiments with " Aleurites moluccana ".*

These trials were carried out at the Sardang experiment plantations This variety grows wild in Malaya. Seeds were obtained in March, 1922, from the Khota Tampan plantation situated in Upper Perak. Shading the young plants was found to be unnecessary, germination being more rapid in the beds exposed to the sun; 75 % of the seeds germinated successfully; the germination period lasted about six weeks.

The seedlings were transplanted in November, 1922. At Sardang the optimum density was found to be 108 trees per acre. The trees commenced flowering at the end of two years; flowers and fruits are produced practically throughout the year, however, maximum production takes place in July and August. The yields obtained at Sardang are inferior to those obtained in the Philippines, and do not appear sufficient to warrant a profitable cultivation. This appears to be due to the want of fertility in the Serdang soils, and to the attacks of *Diplodia*, which affects the trees. This fungus spreads very rapidly throughout the plantations and in some cases trees have died off in two weeks. Bordeaux mixture may be used for controlling this disease.

3. — Hong Kong.

Aleurites cultivation has been carried out for the last twelve years in Hong Kong and the New Territories The climate ressembles that of South China. The following varieties are cultivated· *Aleurites Fordii*, *A montana* and *A. triloba*. The development of the trees is excellent The seeds are first sown in the nursery, and the trees are later transplanted; plantations are established preferably on slightly sloping ground exposed to the south. Cultivation work is limited to hoeing and fertilizing with farm manure The trees bear an abundance of fruit; the harvest taken place in September-October Each fruit usually contains three seeds; the average weight of the fruit amounts to three ounces, and that of the seed to half an ounce.

All the fruits are exported, and are not treated locally.

4 — India.

Following experiments carried out on a small scale at the Dehra Dun Institute since 1918, in various tea estates in Assam in 1928-30, in the Province of Bihar and Orissa in 1928, in the Shan Federated States, in Burma in 1928, and in the Kurseong Division, Bengal, in 1927-28, it has been definitely established that *Aleurites Fordii* may be successfully cultivated in the Ranchi District (Chota Nagpur), the Province of Bihar and Orissa and in some of the Shan Federated States (Burna)

Experiments are now (1937) being made in the United Provinces and the Punjab

The following is a concise account of the different experiments carried out, acording to the data received.

I. — Dehar Dun District

In this district, the experiments were undertaken chiefly by the Institute and College of Forestry Research, and also in some tea estates.

The variety *Aleurites Fordii* alone was tried These trials were only made on a small scale, a few acres being cultivated. The ground selected for planting is situated at an average altitude of 650 metres, the annual rainfall amounts to 1700 mm and takes place from June to September The type of soil varies: sandy soils in the Telpura region and clayey in the Ambari region. The climate varies very considerably, a maximum temperature of 41° C and a minimum of 2° 2 C being noted

According to information received from the Ambari tea estate, the cultivation period occurs from November to January The seeds are sown in nurseries, in rows, with a spacing of 33 cm. between each seed. The murseries are covered with a light mulch dressing and frequently watered before the rainy season; following the rains, two weedings are effected. Out of all the seeds sown, only four germinated; of the four resulting plants, two were transplanted to Telpura and produced fruit; the remaining two were left in pots, not watered, in the Ambari region, and produced neither flowers nor fruits. The two plants transplanted to Telpura started to bear flowers and fruits at the end of three years, that is, during the wet season of 1935. The flowers were arranged in clusters of five or three. The manager of the plantation was unable to analyse the fruits not having the necessary laboratory apparatus at his disposal.

The plantations established at the Dehra Dun Institute since 1918 were not successful. The plants grew well and produced a considerable quantity of fruit, but these contained very few well developed seeds and also the oil content of the few normal seeds was insignificant

II. — Assam.

Experiments on the acclimatization of *Aleurites* in Assam were mainly carried out in tea plantations These trials began approximately in 1918. Little information is available of the results obtained, however, some data have been obtained from the Indian Tea Planters' Association and the Bagmiri tea plantation.

(a) *Experiments carried out by the Indian Tea Planters' Association*

These trials began in April, 1928, and were carried out at the experiment station of the Association and in certain regions of Assam and Bengal Dooara. The climatic conditions vary considerably according to zones, the annual rainfall amounts to 1900 to 4500 mm The period extending from November to March is very dry, while that from May to October is excessively wet During the months of July, August and September, the humidity of the soil definitely exceeds the optimum. During the dry season, from November to April, the temperature varies from a maximum of 29° C and a minimum of 4° 5 C In May and June, these temperatures range from 35° C to 24° C; during the wet season, in July and October, the temperature varies from 32° C to 25° 5 C.

Aleurites Fordii and. *A montana* were the two varieties used in the experiments.

In establishing the plantations, land was selected preferably at a high altitude and having a good drainage In many cases, old abandoned tea plantations were used. The soil of the experiment station is poor, it was previously covered with a light jungle growth

The seeds were germinated in boxes filled with moist sand and maintained as far as possible at a fairly high temperature (32° C-37° C); at this temperature, the seeds germinated normally in two or three weeks, while at a temperature of 27° 5 C, several months were required. The germinated seeds were sown in nursery beds, the spacing observed being 20 cm. in all directions The beds were well drained. The seedlings were transplanted at the end of 4 to 6 months, having then attained a height of at least 33 cm they were planted about 7 metres apart in rows. The plantation was protected by bamboos until the young trees had reached a height of approximately 2 metres. The ground was maintained completely free from weeds within a radius of 1 metre about the trees. For the rest of the plantation this work was limited to hoeing. As a fertilizer, 50 lbs., respectively, of nitrogen, potash, and phosphoric acid were applied per acre, given under an easily assimilable form. The nitrogen was supplied in the form of ammonium sulphate, or sodium nitrate, the potash as potassium sulphate and the phosphoric acid in the form of superphosphate.

The trees showed a good development to begin with and produced some fruit at two years old. The fruits mature towards the middle of September. An average of 5 lbs. of fruit per tree was obtained the first year, but this production decreased considerably. It is thought that these poor results are due to the strong winds and storms which occur in March and April when the trees are in flower. *Aleurites* are also susceptible to diseases of the roots (both *A. Fordii* and *A. montana*), especially when growing in land where there is stagnant water. Among the diseases most frequently found may be mentioned: *Fomes lamaoensis*; *Ustulina zonata*; *Sphaerostibe repens*; *Diplodia* and *Fusarium* spp.

(b) *Experiments carried out at the Bagmari tea plantation.*

The official trials began in 1931 at the Bagmari experiment plantation, but were abandoned as no results were obtained. However, the manager of the plantation undertook, on his own initiative, new experiments in 1934, which, up-to-date, have given the following results.

The varieties used in these trials were *A. Fordii* and *A montana*. The *A. Fordii* seeds were obtained from Florida and in respect of *A. Fordii*, belonged to the cluster type. A few seeds collected in Assam, taken from trees giving a good yield were also sown. *A. montana* was cultivated for the sole purpose of later serving as a stock for *A. Fordii*. In fact, the former variety grows better than the latter under the climatic conditions of Assam The plantation where these experiments took place is situated in the Cachar mountains at an altitude of approximately 650 metres The annual rainfall appears to amount to an average of about 1750 mm. The soil is fairly heavy, having a good drainage, situated on the slope of the hill. Regarding the preparation of the land, this work was limited to clearing the jungle and only placing a little manure around the planting ditches. The seeds were first placed in moist sand to germinate. Once the young trees were transplanted, cultivation work was limited to a radius of one metre around the trees, elsewhere a covering of *Tephrosia candida* was grown.

At present all the plants show a good development.

It is obvious that no conclusions can be drawn from this new experiment which would appear to contradict the previous trials. In order to arrive at any definite conclusion the trees must reach the productive stage.

III. — Bihar and Orissa Province (Ranchi District).

Experiments in the acclimatization of the different varieties of *Aleurites* in the Bihar and Orissa Province, and more especially in the Ranchi district, were first carried out by the Director of the Institute for Research Work on

Lake Ranchi at Nankum, and later at the Sabaya tea plantation. These experiments, as will be seen further on, were successful and encouraged further efforts, which were made chiefly by the Director of Agriculture of the Province at the Kanke Experiment Farm and by the Commissioner of Forests at the Hinco experiment plantation.

The Ranchi District is situated on the Chota Nagpur plateau at an altitude of approximately 650 metres The land is composed chiefly of red laterite soil containing a considerable quantity of rocks, and also clayey-loam to loamy-clay soils. According to analyses, these soils are not very fertile and require manuring.

The climate is that of the central regions of North India; there are three seasons: winter or the cold season, from November to February; the dry or hot season, from March to mid-June; and the rainy season, from mid-June to the end of September. During the cold season, the rains occur at intervals as sudden showers. Frosts sometimes occur in the night in December and January; the hot season is particularly difficult for the plants, in addition to the very high temperatures (up to 43° C), strong north-west winds often prevail which blow from sunrise to sunset and wither everything in their path. Moisture during the day often falls to below 10 per cent During this period, the rains occur at very irregular intervals, but it is not unusual to have periods of drought lasting 60 and even 70 days. The average annual rainfall varies from 1250 to 1900 mm , but at least 1400 mm. fall from June to October, consequently the distribution of the rains is not advantageous.

Following this brief review of the environmental and climatic conditions of the Ranchi district, the results obtained during the course of the different experiments carried out on *Aleurites* cultvation will now be described.

(a) *Experiments carried out at the Sabaya tea plantation*

These trials began in 1928 *A Fordii* and *A montana* were the two varieties used. No special attention was given to the selection of the ground in establishing plantations, usually uncultivated land was utilized Consequently cultivation work was limited to clearing the weeds around the trees All the seeds were first sown in nurseries in February and the seedlings were transplanted in August of the same year. As regards manuring, a mixture of ammonium sulphate, ammophos and potassium chloride, at the rate of 1 kg. per tree, was considered sufficient. At present, this dressing is no longer applied. The plantations now cover an area of approximately 600 acres, of which only 25 acres show fruit production. The fruits begin to ripen towards the end of August and continue up to about the second week of October. Usually, there is one female flower per inflorescence in the *A Fordii* variety and ten in the *A. montana* variety. Each fruit, on an average, contains four seeds; the average weight of the fruits is approximately 19 5 grams and that of the kernels 2.5 grams. Exact information as regards yield is not yet available; however, it may be taken that a bushel of fruit per tree is probable. At the beginning of the experiments, some trees died off in consequence of a disease attacking the roots; new trees were planted and have not as yet shown any sign of disease.

In conclusion, it may be affirmed that experiments carried out at Sabaya were entirely successful.

(b) *Trials effected at Namkum.*

These experiments were undertaken in 1928. As at Sabaya, the varieties used were *A. Fordii* and *A. montana*. The most suitable period for sowing is in February; transplanting takes place in the following August. The experiments were carried out in the same way as at Sabaya. The results were also successful and it was found that some of the trees produced fruit even earlier than in America.

It should be noted that the experiments were made with a view to ascertaining whether *Aleurites* trees could serve as host plants for *Laccifer Lacca* Ker. The results were negative, and the experiments were continued purely for the purpose of obtaining oil-yielding seeds.

The area under cultivation at Namkum is very small and only amounts to 0 84 acre and is not sufficient to afford details of exact yields.

(c) *Experiments carried out at the Kanke Experiment Farm.*

These trials commenced in April 1931, the date on which seeds were obtained from Kew Gardens. These seeds sown in the nursery in April of the same year germinated successfully and the young plants were transplanted in February, 1932

Only the *A Fordii* variety was used. At present, only thirty-one plants are still living, which shows that this attempt is only of an experimental character, from which it only may be ascertained whether *Aleurites* cultivation is advisable under the soil and climatic conditions of the Province

In establishing the plantations, fairly poor, stony soil was selected owing to the general impression that *Aleurites* is not very exacting as regards soil Cultivation work is limited to carefully weeding the ground about the trees and to watering the plants when necessary. At the time of transplanting the young trees, 10 lbs of linseed cake are dug into the planting ditch, during growth, from 5 to 6 " chittacks " of Nicifos are applied per year.

The fruits ripen from the end of August up to the beginning of November. The number of female flowers per inflorescence was not noted. The first flowering season takes place during the third year, the first fruits may be harvested during the fourth. No data regarding average yields are available The seeds average 3 to 4 per fruit. The average weight of the fruits is approximately 5/13 tolas and that of the seeds 1/16 tolas. The exact composition of the seed is not known.

(d) *Experiments made by the Commissioner of Forests.*

These experiments were undertaken in 1933 and 1934 at the Hinoo Experiment Garden (Ranchi District). Only *A. Fordii* was used. The trial plantations have a surface area of two and a half acres. The soil of the plantations is heavy, clayey and of a reddish-brown colour. A nursery was first established at Rampur in January, 1934, and two others in 1935, one at Rampur and the other at Hatia. The seeds sown were taken from the Sabaya tea plantation. A good germination resulted The seedlings were transplanted on a rainy day in June when the soil was sufficiently moist. Cultivation work was limited to the placing of farm manure in the planting holes (spacing 5 m. per 5 m.) and the sowing of " Bogamedelos " as a cover plant.

It is still too early to obtain information of the yields; on the other hand, these experiments are carried out solely for the purpose of determining the best methods of sowing and transplanting.

Besides these experiments, seed is distributed to the inhabitants of the district for sowing in their gardens. No information of the results obtained is yet available.

IV. — Burma.

The first trials undertaken in Burma on the acclimatization of *Aleurites* were carried out in 1923 by the Commissioner of Forests, Taunggyi, in the Southern Shan States. In 1929, experiments were also undertaken at the Hmawbi Agricultural Experiment Station, later in 1930 - on a commercial scale - at Hsum Hsai (Northern Shan States). In 1932, approximately 30 acres were sown by a planter of Tavoy, using seed obtained from China.

(a) *Experiments carried out at Taunggyi.*

The first trials date back to 1923. *A. Fordii* and *A. montana* were the two varieties used. No information is available of the results obtained from these preliminary trials.

In 1928, further experiments were made with *A. Fordii.* Very poor results were obtained as the seeds had been affected by the journey, and at the end of 1929 all the plants had died off. In 1929, seeds obtained from Kew and Nanking were again sown, taking advantage of all the data regarding *Aleurites* available at that time. A germination of 75 per cent. was obtained. In respect of density in planting, the system of 75 trees to the acre was adopted. The most suitable period for sowing was found to be at the end of the cold season Trials were also made in sowing direct in the plantation; the results were fairly successful. On the other hand, the *A. Fordii* variety did not appear to suffer through transplanting. The most suitable period for transplanting varies according to the age of the plants. It is more advisable to prick out the one month old plants at the end of July, during the rainy season, and plants of three months towards the end of October, and one year old plants during the rains. The results obtained from transplanting are superior to those attained by sowing direct in the plantation.

Manuring trials have been carried out since 1930; but these were suspended, as there was found to be little difference between the manured and unmanured plots. Potatoes, rice and wheat were also tried as intercalary crops with *A. Fordii*. Wheat is to be preferred as it grows during the rest period of *Aleurites*.

At the end of the first year, the plants had attained a height of 0.3 m.; at the end of the second, 0.50 m.; the third, 1,50 m.; the fourth, 1.80 m. Some of the trees planted in 1929 flowered for the first time in 1932, and again in March, 1933. The flowers appeared before the new foliage in March and remained on the trees up to the middle of April. They are of the usual type: one female flower to every inflorescence.

The fruits ripened in September. An idea of the value of the resulting harvest may be obtained from the following table showing the number of fruits collected in 1933 from trees planted in 1929.

TABLE I. — *Fruit production of a plantation established in 1929* (according to A. LONG).

Plot number	Area in acres	Total number of trees	Number of fruits harvested	Fruit production	
				per tree	per acre
1	3	189	4	0,020	1,30
6	15	840	46	0,055	3
7	6	451	58	0,128	9,6
Totals and averages . . .	*24*	*1480*	*108*	*0,073*	*4,5*

On analysis, the composition of the fruits was found to be as follows

Pericarp and tegument	38.4 %
Seed	61.6 %

The oil content of the kernel is high, amounting to 46.5 per cent. At present *A montana* are no longer in existence, at the most, only a few plants of this variety are to be found, together with *A. Fordii*, in the plantations.

In conclusion, it may be affirmed that *A. Fordii* can be successfully cultivated in the Taunggy district and also in the Southern Shan States.

A. Fordii is a hardy plant, easily transplanted and resistant to fairly severe frosts Transplanting may be carried out at practically any time during the rainy season. Flowering takes place at the beginning of March, the fruits ripen in September Results are encouraging in spite of the primitive method of harvesting the fruits. All attempts at acclimatizing *A. montana* have been unsuccessful up to the present.

(b) *Experiments carried out at Hmawbi and Tavoy.*

These trials began at the Hmawbi Experiment Station in 1929 and at the privately-owned plantation at Tavoy in 1932.

This cultivation is still in the experimental stage at the Hmawbi Station. From experiments made in the plantations in the Federated Shan States, the cultivation of *A. montana* would appear to be more successful than that of *A. Fordii.* At the Tavoy plantation, 250 acres are cultivated with *A. montana* and 150 with *A. Fordii.*

The Hmawbi Station is situated in the plains of lower Burma. The year is divided into two seasons: a rainy season from May to October and a dry season from October to May. The annual rainfall amounts to approximately 2,440 mm., and to 4,280 mm. at Tavoy. At Tavoy, the rainy season coincides with that of Hmawbi. The temperature varies from 24° C to 32° C during the rainy season and from 19° C to 38° C during the dry season in the plains. At Hmawbi, the soil is light, sandy-clay, of laterite origin. Before establishing the plantations, the land is completely cleared. The planting distances observed are 6.5 m. in all directions.

At Tavoy, the land is undulating and covered with a dense forest; the site selected for establishing the plantation was entirely cleared by felling, burning and uprooting the trees during the dry season. At the beginning of the rainy season, after ploughing and harrowing, cover crops are planted. The soil is moderately clayey, of a good depth and well drained. On the hillsides, the majority of the plantations are established on the red soils of the plateau, placed at an altitude varying from 650 m. to 1800 m. approximately.

Usually the seeds are first sown in the nursery and the young trees transplanted at the end of four months. Germination tends to be slow.

At Hmawbi, the ground is ploughed and harrowed twice a year in order to keep it in good condition and remove all weeds; at Taboy, however, as soon as the cover crop has reached an adequate growth, cultivation work is limited to placing a certain quantity of semi-decomposed straw around each tree, and taking the usual precautions against fire.

The manurial requirements of the trees are not known; however, it is the customary practice to grow green manure plants (*Vigna Catiang, Phaseolus Mungo*) during the rainy season and later to plough them into the ground.

At Hmawbi, the *A. Fordii* trees have not yet flowered. The *A. montana* specimens planted in 1930, flowered in 1933 for the first time, but no fruits were obtained. In 1934, some of the trees bore fruit, in 1935, the trees again flowered, but little fruit was produced. At Tavoy, only 20 acres of trees are in fruit.

At present, in Hmawbi, 70 per cent. of the *A. Fordii* trees have died off; on the other hand, the *A. montana* specimens continue to flourish and are not attacked by any disease.

(c) *Further trials made in Burma.*

Mention should be made of a plantation established on a commercial scale of *A. Fordii* situated at Hsum Hsai, in the northern Shan States. This plantation, established in 1930, is situated on a hillside. The results obtained are satisfactory; trials were made in planting direct in the plantation and fairly successful results were obtained.

The Burma Department of Agriculture also carried out some experiments at Maymyo and Mandalay. At Maymyo, the germination of the seeds succeeded; the plants developed slowly the first year and more rapidly in the following years.

V. — Bengal.

Experiments in the acclimatization of *Aleurites* in Bengal began in 1927-1928 in the Kurseong Division. The experiment plantations are placed at an altitude varying from 160 m. to 500 m. approximately; in the establishment of the plantations, the eastern slopes of the hills were chosen and sandy soils obtained from the decomposition of sandstone. The temperature fluctuates between a maximum of 37° C and a minimum of 7° C The annual rainfall amounts to 3190 mm. and takes place from June to September.

A. Fordii and *A. montana* were the varieties used. No details are available as regards the progress made in the young plantations, however, the results appear to be successful as the analyses of *A. montana* seed obtained from this region are available. The result of these analyses were as follows:

Tegument	40.0 %
Kernel	60.0%
Moisture content of the kernels	16.1%
Oil content of the kernels	44.0%

These figures compare favourably with those obtained in Burma with *A. Fordii* seed.

5. — Palestine.

Practically all the various attempts at establishing *Aleurites* cultivation in Palestine ended unsuccessfully. The following is a brief report by the Department of Agriculture, Forests, and Fisheries, which summarizes the experiments carried out up to date and the results obtained.

(a) *Aleurites Fordii.*

In 1928, seeds were sown originating in Florida and despatched by the Director of Kew Botanical Gardens. These seeds were sown in various Government nurseries in different regions of Palestine. The seeds germinated well, but the majority of the young plants died off. In 1929, a second trial was undertaken, and the results obtained were much superior. Sowing took place in May and from 40 to 70 per cent. of the seeds germinated in 30-40 days. All the young plants were transplanted and 90 per cent. were successful. The final transplantation took place in the winter of 1930-31, in plots situated in four districts, i. e Jerusalem, Bab-El-Nazareth and Balad Esh-Sheikh (near Haifa). Of all the plants (431 in all) only two survived, at Bab El-Wad. The Bab El-Wad plantation is situated on the slopes of a hill bordering the main route from Jerusalem to Jaffa; the altitude is approximately 300 metres. The soil is fairly heavy, clayey-calcareous and marly, the result of the decomposition of calcareous rocks which form the greater part of the hill. The plot slopes sharply towards the south-west. The average minimum temperature is approximately 1° C and the annual rainfall amounts to a little over 300 mm.

The two surviving plants are growing in the lower part of the plot. Probably, their survival is due to their protected position and to a higher aquiferous bed. However, the development of the plants is not very satisfactory (they only attain a height of 40 and 50 cm.). The main stem withered during the dry season and the new shoots grew up from the roots in the winter. It may be deduced from this that the ecological conditions are not suitable foi this variety, and that *Aleurites Fordii* requires a far greater amount of moisture.

(b) *Aleurites montana.*

In 1929, *A. montana* seed was sown in nine different nurseries. In the majority of cases, the seeds did not germinate. It is considered that this failure is due to the inferior quality of the seeds, however, no further trials were undertaken.

D. — **Australian possessions.**

I. — **Australia.**

I. — General information

(a) *Introductory.*

From the data available at present on the possibility of producing tung oil in Australia and acclimatizing *Aleurites*, it is definitely shown that plantations may be established in the Confederation and that an oil having all the qualities required by technologists may be obtained.

Some considerable controversy has arisen regarding the possibility of establishing an industry in Chinese wood oil on a commercial basis in Australia. In spite of the divergency of opinion, the Department of Agriculture, has encouraged the establishment of small experimental plantations as a means of obtaining the indispensable information regarding the climatic and soil requirements of *Aleurites*. Messrs. Penfold and Morrison from whom most of this information on the acclimatization of *Aleurites* in Australia is obtained, consider that *Aleurites Fordii* may be very successfully grown by horticulturists and poultry growers in Australia.

A. Fordii has the advantage over other fruit trees of not requiring daily attention and not demanding such large applications of fertilizers. Also, up to the present, it is not subject to attacks by serious diseases or very harmful pests. Rotation crops, especially leguminous plants, can be continued between the rows of trees.

In order to encourage horticulturists and poultry growers in the cultivation of *A. Fordii*, the Department of Agriculture reduced as far as possible the expenses incurred.

According to all the data obtained, it is definitely proved that *A. Fordii* will flourish in certain districts, the most suitable region being the coast zone in East Australia, north of Sydney.

Notwithstanding the experiments already made, further investigation work is very necessary, particularly in respect of grafting, the selection of trees having a high fruit production, etc.

(b) *Characteristics of the trees.*

In Australia, the leaves of *A. Fordii* are deciduous; leaf fall takes place in June.

Flowering is very abundant and occurs in September or October.

The seeds germinate towards the end of September or October, consequently, the seeds should be sown at the beginning of spring (southern hemisphere). It was found advisable to soak the seeds for 36 or 48 hours before setting.

(c) *Selection of the nursery site.*

Nurseries should be established in a part of the plantation well exposed to the sun and having a good drainage. The soil should be carefully dug and reduced to a considerable degree of fineness. Sowing in rows, spacing the seeds 20 cm. apart, is recommended. The rows are placed one metre apart in order to allow the cultivation of intercalary crops and facilitate cultivation work. Germination takes places after 30 or 60 days according to the locality and the climatic conditions. Longer periods have been reported, which are probably due to the origin of the seed. Imported seed sometimes remains in the ground for over 12 months before germinating.

The application of a well balanced fertilizer, composed mainly of well decomposed farm manure, forces the growth of the young plants. Growth is rapid and at the end of nine months the plant is ready for transplanting; as far as possible, the plants should have the following dimensions at the time of the final transplantion· height of the stem· from 30 to 45 cm; length of the root system· 30 cm. It is not advisable to cut the roots and top the young plants to arrest growth, unless absolutely necessary; however, this practice has sometimes been followed with a certain success in Queensland.

(d) *Selection of the plantation site.*

Special attention should be given to the establishment of the plantation; a well-drained soil, a position protected from the sea winds should be selected. In practice, any type of slightly acid and sufficiently moist soil is suitable. The most suitable type would appear to be a sandy or clayey soil lying on a clayey sub-soil of 1 to 2 metres in depth. Red soils have been found to be suitable for *Aleurites* cultivation, and also a wide variety of cultivable soils in New South Wales and Queensland and even in certain districts of other states of the Confederation. As a general rule, it is possible to cultivate *Aleurites* in citrus regions. It is considered that many other regions would be suitable with the exception of districts subject to sudden and unseasonable frosts. The requirements of *Aleurites Fordii* vary very considerably, and this variety is found to be easily adaptable to different circumstances, as plantations in production may be seen from Cairn in the north of Queensland to the south of Sydney, New South Wales.

(e) *Spacing of the trees and maintenance of the plantation.*

Experience has shown that it is more advisable to increase the density of the plantation and to bring the number of trees up to approximately 160-200 per acre.

The ground should be kept free of all weeds in order to prevent harmful insects lodging in the refuse on the soil.

Mainly nitrogen fertilizers should be used, for preference farm manure, If the plantation is established on virgin soil, the question of artificial manuring need not be considered until the trees come into production. The use of complete fertilizers in the proportion of a few ounces to a pound per tree is recommended, such an application brings about a more rapid growth and an increased foliage.

It is not advisable to graze cattle in *Aleurites* plantations as there is a possibility of the animals damaging the leaves in rubbing against the trunks. From past experience it has been found that cattle cause considerable damage in the plantations and that goats, in particular, show a great partiality for the foliage of *Aleurites*.

(f) *Growth and yields.*

The trees show a rapid growth, and start to produce fruit at three years of age. Experience has shown that a good harvest cannot be expected before the fourth and even the fifth year. Up to the present, yields have been found to vary very considerably. The best results were obtained with two trees at the Grafton Experiment Farm in New South Wales. The yields of these trees are as follows.

The trees were planted in July, 1920. Fruits were produced for the first time in 1923 (30 lbs. of fruit), in 1924, no harvest, in 1925, a good fruit production (30 ½ lbs. of fruit which yielded 16 ½ lbs. of seed and 10 lbs. of kernels), no information is available for 1926 and 1927, in 1928, 1929 and 1930, 92 lbs. of fruit (dried) were produced; in 1931, 89 lbs. of dried fruit, in 1932, 91 lbs, in 1933, 104 lbs., and in 1934, 120 lbs.

Unfortunately, it is impossible to obtain any other information on yields as the majority of experimental plantations have only been recently established However, it is known that the greater part of 3 to 4 year old trees produce an average of 300 fruits per year. Some *Aleurites* trees growing under particular favourable conditions, have produced from 700 to 1000 fruits at seven years old. In the opinion of messers. PENFOLD and MORRISON, the trees, to have a commercial value, should produce at least 1000 fruits

In table II, the principal characteristics of Australian fruits of different origin are given.

TABLE II. — *Principal characteristics of Australian A. Fordii fruits of different origin.*

(According to A. R. PENFOLD and F. R. MORRISON).

Type of fruit	Weight of fresh fruit	Weight after being airdried	Diameter of the fruit (in inches)	Diameter of the fruit after being airdried (in inches)
Produced at Pennant Hills				
Large	91 gms	33 gms	2 3/8	2
Medium	53 gms	17 gms	2 1/8	1 7/8
Small	52 gms	9 gms	1 3/4	2 1/2
Produced at the Wollongbar Lismore Experiment Farm, N S W				
Large	114.2 gms	40.5 gms	2 5/8	2 1/8
Medium	80 gms	24 gms	2 3/8	1 7/8
Small	66 gms	18.5 gms	2 1/4	1 3/4

With regard to the oil yield of the Australian tung fruits, experiments made gave the following figures. 100 lbs. of Australian fruits gave 47 to 54 lbs. of seeds, which in turn contained 25 to 33 lbs, of kernels.

(g) *Diseases and pests.*

In the Australian *Aleurites* plantations, only two attacks by insects were reported.

The first occurred at Ingham, Queensland. The insects attacked the old and young leaves and also the young shoots. These had been attacked at night, the insects remaining in the soil during the day. According to the report of the Entomologist of the Department of Agriculture at Sidney, the damage would appear to be caused by *Lagria cyanea*, a kind of tenebrionid, and a variety of *Metriorrhynchus* (*Lampyrideas* family).

The second attack was reported in New South Wales; this insect was ascertained by the entomologist of the Department of Agriculture as being *Aspidiotus hederae.*

(h) *Conclusions.*

Following the experiments carried out in different parts of Australia and in the neighbouring Islands, it may be affirmed that the cultivation of *Aleurites Fordii* is not possible in the Pacific Islands, but shows every possibility of success on the east coast of Australia. On the other hand, *Aleurites montana* does not succeed in the coastal regions of east Australia, but appears to be quite suitable for tropical and subtropical regions.

II. — BRIEF ACCOUNT OF THE EXPERIMENTS CARRIED OUT IN QUEENSLAND AND NEW SOUTH WALES.

A. — *Queensland.*

Experiments commenced in 1927, during which period a small plantation was established in the Dawson Valley district and in the gardens of the Queensland Acclimatisation Society at Lawnton, near Brisbane. At that time, small quantities of seed were distributed to the farmers throughout the State. Later, in 1929, a small plantation of 4 acres was established at Imbil, in the Mary Valley district. The largest State plantations are managed by the Queensland Forests, Ltd.; these are situated in the valley of the Johnston river, near Innisfail, and have approximately a surface area of 48 acres, planted solely with *Aleurites Fordii*.

The climatic conditions of the districts under cultivation are as follows.

In the Innisfail district, the annual rainfall amounts to about 3800 mm., occurring chiefly in the summer months. The climate is hot and moist and entirely free from frosts. *Aleurites moluccana* grows excellently under these conditions; this variety is also indigenous to the coastal region of north Queensland.

The Mary Valley and Brisbane districts have a more moderate climate.

At Imbil, approximately 1350 mm. of rain fall per year; light frosts sometimes occur.

In the Brisbane district, the average annual rainfall amounts to 1270 mm., but owing to its close proximity to the coast, frosts are not severe.

The varieties used in the acclimatization trials were *A. Fordii*, *A. montana*, and *A. moluccana*, however, the greater part of these experiments was carried out with the first-mentioned variety. Cultivation trials with *A. montana* were only made in the northern part of the State, while the third variety is indigenous.

In establishing the plantations, the seeds were sown in spring (September and October), having been previously soaked for 48 hours. The seeds are usually sown in nurseries, however, direct sowing has also given good results.

The application of 3 lbs. per tree of a mixture of equal parts of bone meal and dried blood has given good results by increasing the development of the trees in the lighter soils of the Brisbane district.

At Imbil, the trees flowered and produced fruit at the end of three years; at the seventh year, production may be estimated at 200 and even 500 fruits per tree.

Analyses have shown that the fruits possess the requisite characteristics and also an oil content which compares favourably with that of fruits from other countries. In the following table, the results of the analyses of *Aleurites Fordii* harvested at Imbil are given.

From the preceding table it may be noted that the composition of the fruits is very constant irrespective of their origin.

The combined experiments made both by the Department of Agriculture and the Society of acclimatization, have shown that it is possible to obtain flourishing plantations and a good quality oil wherever the climatic conditions are favourable.

TABLE III. — *Analyses of Aleurites Fordii collected at Imbil.*
(According to E. H. GURNEY and G. R. PATTEN).

	Tree obtained from Australian seed growing on prairie land	Tree obtained from American seed growing on prairie land	Tree obtained from American seed growing on forest land
Tegument	38.1 %	34 %	34.5 %
Kernel	61.9 %	66 %	65.5 %
Average weight of the seed	3.57 gm	3.06 gm	3.29 gm.
Average weight of the kernel	2.20 gm	2.00 gm	2.90 gm
Oil content of the kernels	57.8 %	57.4 %	58.3 %

(b) *New South Wales.*

The first trials in *Aleurites* cultivation were undertaken by the Department of Agriculture in 1927. These experiments were made chiefly with the *A. Fordii* variety and only to a limited extent with *A montana*. In order to ascertain the most suitable districts in the State for this cultivation, a considerable quantity of seeds were distributed to various planters throughout the State.

Although *Aleurites* cultivation is still in the experimental stage, it may be said that in order to arrive at normal growth, *A. Fordii* requires an annual rainfall of 700 to 750 mm., a hot summer, and a fairly cold winter so as to obtain a period of vegetative repose. Though not very exacting as regards soil, this variety prefers soils slightly acid, deep, of a sandy and light type, and rich in organic matter. These conditions are especially prevalent in the coastal regions.

The seeds are sown in nurseries and the seedlings are transplanted in winter, at an age of about six months; during the first years, the ground about the trees is carefully weeded, as a rule little manuring is practised.

At present, the plantations are in production and good condition. The fruits ripen in winter, reaching a diameter of 5-8 cm. and slightly resembling a small apple. As a rule, there is only one fruit per inflorescence; sometimes however, there are two or more. The fruits contain from three to five seeds. The average yield amounts to 40 lbs. of dried fruits per tree. The average weight of 1000 dried fruits is approximately 56 lbs.

2. — New Zealand.

In New Zealand, *Aleurites* cultivation on a methodical basis began in 1929. Before this period, the Government and certain private individuals had attempted to acclimatize *Aleurites Fordii* in various regions of the Island. Some of the seed was obtained from China, while some was supplied by the Empire Marketing Board, following a special arrangement made with the

Florida experiment stations. These trials, owing to a want of technical knowledge, did not pass the experimental stage.

In 1929, therefore, trials were again taken up on a commercial and industrial basis. Approximately 1000 selected seeds were sown in a garden at Northcote. In 12 months, plants approximately 1.50 metres in height were obtained.

At the same time, a consignment of 60,000 seeds was received from Florida, and sown in a specially selected nursery, situated near Helensville. These seeds germinated equally well, in spite of the nurserv being exposed to strong winds.

These experiments carried out over a period of seven years have shown that *Aleurites Fordii* could be successfully cultivated on an extensive scale in certain localities in North Auckland.

In the north of the island, several thousands of acres of land suitable for *Aleurites* cultivation lay unutilised. Six or eight companies purchased these lands in 1932, and established plantations on a commercial scale. The results obtained by two of the most important associations, the New Zealand Tung Oil Corporation and the Tung Acres Plantations of Auckland are as follows.

According to the report of the director of the New Zealand Tung Oil Corporation, in 1932, this company purchased in the Kaikone district, 180 miles to the north of the city of Auckland, 3,000 acres of land of volcanic origin, having an average altitude of 200 metres, these lands are situated 50 miles from the coast and protected from strong winds.

1100 acres were planted in 1932. The trees were placed 9 metres apart in all directions. In 1933, 600 acres were planted and later in 1934, 500. At present, the total area under cultivation amounts to approximately 2,100 acres.

The young trees were set in soil previously under cultivation and in former grazing lands. The trees planted in former pastures showed a more rapid development at the beginning than the others, but were caught up later by these latter. Cultivation work was limited to the removal of all weeds within a radius of two metres about the trees and to weeding the intervening spaces by means of a rotatory harrow.

Every season, the soil is worked with a sub-soil plough in order to obtain a good drainage of the land. Lupins and soya are utilized as cover plants. An attempt was made to use *Crotalariae* for the same purpose, but these plants do not appear to grow well in the district.

Very few trees had to be replaced· 1 per cent. in 1933, 2 5 per cent. in 1934 and 2 per cent. in 1935.

The trees planted in 1932 began to flower in the spring of 1934, and produced a few fruits, which ripened normally. The seeds had an average oil content of 56.83 per cent.

The New Zealand Tung Oil Corporation supplied seeds to other plantations, namely, Dargaville (300 acres), Manganui (200 acres), Kaoo (200 acres), Waitangi (100 acres) and Mangawi (400 acres).

According to the results obtained from these plantations, it may be affirmed that *Aleurites Fordii* can be successfully cultivated in this region of New Zealand, on condition that the plantations are well protected and sufficiently drained. The director of the Tung Acres Plantation of Auckland in a report gives some interesting data on the results obtained in his own and in neighbouring plantations. These plantations were established in 1930. At that time *A. Fordii* seeds were obtained from Kew Gardens and U. S. A., these were sown in 1930 and the seedlings transplanted in July, 1931. In 1932, the plants did not show much development, no doubt owing to the change of season, being brought from the Northern to the Southern Hemisphere. During that year, various experiments in methods of cultivation and the use of fertilizers were carried out. Trials with different types of artificial manures did not appear to be very successful, on the other hand, poultry manure gave very good results.

In 1931 and 1932, the trees flowered and began to produce fruit, which however, did not mature, but an abundant harvest is expected in the season of 1936. The total area planted by the different companies in the neighbourhood amounts to 5,000 acres; this total is being rapidly increased.

The results obtained in four years agree with the former results, and it appears to be very probable that the cultivation of *Aleurites Fordii* in the region to the north of Auckland will make considerable progress.

J. Legros.

A NEW PLOUGH FOR THE LAYING OF IRRIGATION AND DRAINAGE PIPES

When it is required to irrigate or drain well the sub-soil, it is necessary to lay very considerable lengths of piping in the ground. This process, up to the present, used to entail very high costs in the laying of this type of piping. In particular, the practical utilization of sub-soil irrigation which requires the pipes to be closely connected, could not be extensively used unless a considerable decrease in costs could be obtained.

To attain this object, Prof. Janert of the Agricultural Institute of the Leipzig University, has invented a pipe-laying plough, which when in operation moulds the pipe in porous concrete and places it in the soil.

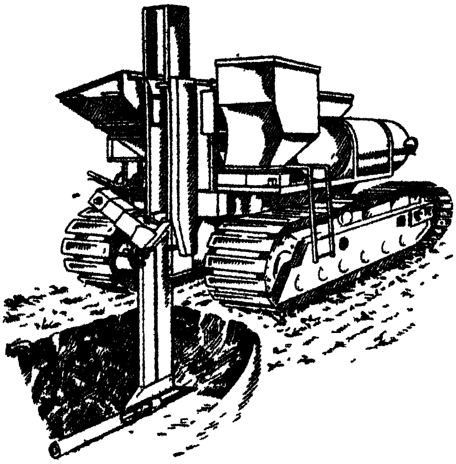
This machine is operated on the principle of the mole plough, and, in the same way, hollows out a subterannean ditch in the soil which serves as a mould or the piping.

This method of laying pipes in virgin soil also shows several advantages in respect of the functioning of the pipes from the point of view of agricultural engineering. The porous walls come into immediate contact with the virgin soil so effectively that a direct connexion between the capillary pores of the sides of the piping and the capillary surface of the surrounding soil is established. According to this principle, the water of the soil passes into the interior of the pipe and vice-versa, without any difficulty and, evidently, involving no obstruction of the drain.

The machine itself, consists mainly of a caterpillar tractor, a concrete mixer placed on the tractor and an apparatus for the moulding and laying of the pipes. The tractor is run by means of a Diesel motor. The mechanism of the piping is attached in a mobile manner to the chassis and held in position by a safety bolt (Brüchbolzen). This bolt protects the machine and the plough material against an excessive overloading, as it gives way at a resistance of 4000 kg.

The concrete mixture passes through a vertical tube 12.5 × 4 cm. in diameter at the section which moulds the pipe in the ground. The walls of this vertical tube are lined with a particularly smooth material, the conduit is also continually in movement by means of a shaker so that the danger of adduction stoppage in the pipe mould by a possible interruption in the mixing of the concrete in the tube is completely avoided.

The depth to which the pipe moulder arrives may be regulated as required and attains a maximum depth of 750 mm. With a full concrete container, 300 metres of piping may be produced. The mixer may be filled during operations.



New plough for the laying of irrigation and drainage pipes.

In ordinary soil, the amount of work carried out may be calculated at 4 m per minute, 1500 m. of piping being laid per day. For every metre, the machine requires approximately 0.6 kg. of cement, 3.5 kg. of sand and 0.05 kg. of fuel.

From these data, the expenses may be estimated on the local costs of raw material and fuel.

Two men are necessary for the working of this machine, one in charge of the tractor and another in control of the concrete container

Trials with this new machine were made for the first time in the neighbourhood of Leipzig, the results obtained appear to fulfil every expectation

H J. HOPFEN

MISCELLANEOUS INFORMATION

Congress, Exhibition, etc.

INTERNATIONAL ASSOCIATION OF SOIL SCIENCE — The President of this Association notifies that, as the Conference of the Fifth Commission cannot take place at Madrid, it will be held at Vienna at the end of August and the beginning of September, 1937. The members who wish to participate in this Conference are requested to register their names in the meantime with Prof Dr A Till – Hochschule für

Bodenkultur, Vienna XVIII – who will also be pleased to supply all the necessary information

The Reports of the work of collaboration of the second, third and fourth commission of the International Association of Soil Science, regarding the determination of the quantities of potash and phosphorus utilizable for plants, published by Prof Dr. E A. Mitschelich will shortly be issued Subscriptions may be addressed to the representatives of the Association in each country or else to Dr D J Hissink, Groningue, Hollanp N v. G

RESOLUTION OF THE XVIITH INTERNATIONAL CONGRESS OF AGRICULTURE (SCHEVENINGUE) THE HAGUE, 16-24 JUNE, 1937

IST SECTION – *Agrarian policy and agricultural economy*

The Congress declares –

(1) That butter is one of the principal products of world agriculture and a food indispensable for man

(2) That the disastrous price level prevalent on the international butter market, since 1932, is one of the chief causes of the crisis in international agriculture

(3) That the fall in price on the butter market is due to the world depression and chiefly to the wider use of substitutes, which has restricted the increase in butter consumption necessary to absorb the production accrued and also to the irregular supply to the principal markets by the exporting countries

As a means of effecting a rational organization of the butter market, the Congress recommends the different governments concerned to take every possible measure to increase consumption The following points are to be taken into consideration

(1) Improvement of the quality and the standardization of butter production,

(2) Propaganda among the consumers (information on the dietetic value of butter in comparison with other fat substitutes),

(3) Invitation to State establishments, or those subsidized by the State (Institutes, etc), to use mainly butter,

(4) Restriction of the trade in vegetable fats and margarine by obliging bakers, confectioners, restaurant keepers, etc to declare the use of these fats, restriction of imports and the levy of a tax on these substitutes, or on the raw material used in their production, the possible prohibition that certain food industries should employ margarine,

(5) The introduction, in the legislation of all the countries, of a clause prohibiting the use of the word « butter » for any other product than that obtained from milk by the recognized processes employed in the preparation of butter, and in which no fats are contained other than those originating in milk,

(6) The prohibition of colouring matter in margarine in order to give it a resemblance to butter,

(7) The prohibition to use in propaganda in favour of margarine, any expression, illustration or any other means which might possibly give the public the impression that it was a dairy product;

(8) The prohibition of the sale of a mixture of margarine and butter;

(9) The encouragement of the sale of fresh or liquid butter to persons without means and employment;

(10) The granting of large subsidies for the organization of butter production;

(11) The methods to be adopted for the purpose of reducing the cost of butter and agricultural production, in order to lower the cost price and widen the market.

The Congress invites the governments and agricultural corporations of the different countries to collaborate in the conclusion of agreements between the States, which will assure an organized supply to the butter markets, thus preventing considerable price fluctuations and eliminating detrimental competition among the production centres.

Among the measures to be taken in this connexion, the Congress notes·—

The establishment and periodical publication of precise statistics on the production, stocks and consumption of butter, which will afford the possibility of providing, as quickly as possible, for periods of over-production or shortage,

The adaptation, as far as possible, of production and over-seas supplies to the requirements of the large centres of consumption.

The realization of the afore-said measures, entailing a progressive increase in the sale price of butter, will bring about at the same time, taking into consideration the conditions of home production in every country, a reduction in the systems of direct or indirect premiums on the production or export trade by affording an effective collaboration between the States for the systematic organization of all markets. Taking into consideration that such measures can only be realized after a detailed study of the international measures required, the Congress

invites the International Commission of Agriculture, in agreement with the International Dairying Federation, to call a meeting of a special Commission for the purpose of preparing an international Conference, with the object of studying the ways and means to be used in obtaining an improved organization of the butter market, taking into account alike the interests of the exporting countries and those of the importing countries

IIND SECTION -- *Instruction and propaganda*

I

The Congress —

(1) Notes the considerable influence which higher agricultural instruction exerts in different ways, both direct and indirect, on the agricultural policy of the nations,

(2) Considers that this influence, in view of the favourable results obtained, is certain to increase, and declares this progress to be desirable, the assiduous collaboration of scientists with political leaders being indispensable

The Congress also considers that in order to afford advanced agricultural instruction the possibility of exercizing the greatest possible influence, it is very necessary, as a preliminary step, that organization and curricula should everywhere continue to be complete and up-to-date, in order to take into account any changes in the position

This modernization should hold an important place in economic and social sciences together with other scientific measures, which rightly were preponderant at the beginning of the development of agricultural instruction, in order to take into account the fact that the political and social factor has been superimposed on the economic factor, rendering necessary new methods

Advanced agricultural instruction should be completed by higher instruction, comparative and critical, the object being to induce the student fully to grasp the technique, taking into account the conditions which determine the present form

In order to achieve this modernization in the shortest possible time, it would appear to be indispensable, in many countries, that the means at the disposal of the Schools of Advanced Agriculture should be suitably increased, more particularly in the case of grants by institutes for special studies of economic and political agriculture.

Also, a collaboration should be made between agricultural instruction and economic and legal education, as given in the faculties of law and other faculties, on all subjects affecting agricultural problems.

The Congress invites the International Commission of Agriculture to notify the International Institute of Agriculture of this resolution.

II.

A. — The Congress invites all the agricultural organizations affiliated to the International Commission of Agriculture and its two special Commissions – the special Commission of Agricultural Cooperation and the special Commission of Agricultural Labour – to give their full attention and every possible care to the transmissions on agriculture made by the national broadcasting service of their country and to take all necessary measures in order that, – in every country where as yet there is no special agricultural broadcasting service controlled by a central bureau charged with the preparation of the programme of agricultural transmissions, such a central organization should be established under the management of experts doubly qualified both from the technical and the professional point of view. These central bureaux engaged in carrying out the agricultural broadcasting services are required to maintain a close and regular collaboration with all privately owned or public agricultural organizations, corporations and institutions, these latter retaining a certain influence on the ideological and technical control on the transmissions of the agricultural programme.

B. — The Congress invites the central bureaux of the agricultural broadcasting services in the different countries and, where not yet established, the central agricultural organizations or institutions of each country, to forward, at least once a year, to the International Commission of Agriculture at Paris, a general report on the present state and organization of agricultural broadcasting in the respective countries The International Commission of Agriculture, on their side, will transmit the reports to affiliated organizations in each of the respective countries

C. -- As the International Commission of Agriculture, since the XIVth International Congress of Agriculture held at Bucarest in 1929, follows with the greatest interest the growing importance of broadcasting in agriculture, and as the XVth International Congress of Agriculture held at Prague in 1931 unanimously passed a resolution, requesting the establishment of an international agricultural broadcasting centre, the Congress recommends the International Commission of Agriculture to study the possibility of establishing, taking into account the initiatives already operating in that direction, a special centre of research in respect of agricultural broadcasting in order to ensure a suitable control of wireless transmission in the country, in conformity with the general programme of the I. C. A.

D. — In conclusion, the Congress recommends the regular inclusion in the programme of the future International Congresses of Agriculture, of a report dealing with the study of the importance and improvement of broadcasting to the advantage of agriculture.

IIIrd Section. — *Agricultural Cooperation*

I.

The Congress adopts the following conclusions arrived at by the IIIrd Section on the subject of " The agricultural cooperative societies, particularly these of advanced development, in the matter of controlled economy ":—

(1) The agricultural cooperative societies are of the opinion, that in present circumstances, a certain control by the State is a necessary safeguard, provided that the

existence of economic groups shall be guaranteed and that the principles governing the maintenance of private property shall be taken into account and that the producer shall not lose the right of taking any initiative in his own farm.

(2) The agricultural cooperative societies request that in order to take their part in controlled economy, their field of action in this respect shall be determined by law, though without affecting in any way their autonomy or independence The agricultural cooperative societies are opposed to the establishment of compulsory cooperative organizations

(3) This field of activity should be a particularly wide one in the organization and control of the sale, distribution and production for market purposes, as also in the imports and exports of agricultural products, the widest possible influence should be accorded to agricultural cooperative societies in the distribution of a suitably established credit.

(4) The agricultural cooperative societies request to be consulted as regards the drawing up of decisive measures for controlled economy

(5) The agricultural cooperative societies request that the measures for controlled economy which shall be taken with regard to other branches of economy shall not necessitate any losses in agriculture which would not be fully justified by the greater gain to the Nation In this respect, the agricultural cooperative societies wish to be allowed to participate in the preparation of thse-measures

(6) In the above mentioned activities, the most important cooperative societies should also conform strictly to the principles which assure the independence of cooperation as regards activity, administration and responsibility, and carry out the special duties incumbent on them in their quality as organizations on behalf of the agricultural population, in such matter as assistance and provident work in the country, encouragement of the young people to collaborate in economic and cooperative activities, popularization and extension of cooperative principles, etc

Considering the capital importance of cooperative propaganda and instruction for the development of the cooperative movement and an increase in its power in the different countries, the Congress considers it very necessary that international collaboration for the purpose of attaining these objects should be more effective than in the past In the opinion of the Congress, this work should be put into effect by —

(1) Taking the necessary measures to establish a more systematic division of the work than at present, between the international institutions and organizations engaged in the diffusion of information in respect of cooperation,

(2) Requesting the International Commission of Agriculture to reorganize its activity in the diffusion of information on cooperation in order to enable all those engaged in propaganda and instruction redarding agricultural cooperation, to obtain the most important and detailed data at present available on the different processes and methods adopted in cooperative propaganda and instruction, and also in such a way as to permit these data to be obtained at shorter intervals than at present,

(3) Approving the value of the work carried out by the International Committee of Inter-cooperative relations and more especially drawing the attention of this Committee to cooperative propaganda and instruction,

(4) Requesting the International Institute of Agriculture which, in accomplishing its varied and valuable work in the diffusion of agricultural information in general, has regularly supplied useful data on the development of the cooperative movement in the different countries - comprising propaganda and instruction - to endeavour, if possible, to render its activity in the above-mentioned branches of study even more effective;

(5) Requesting the International Commission of Agriculture to study the question of determining the most suitable means of establishing personal contact, with a view to exchange of experiences, between the persons in the different countries engaged in cooperative propaganda and instruction, such as publishers of cooperative journals, instructors in cooperative schools and in cooperative courses, persons charged with the production of cooperative films, and in general, all persons responsible for organized work in these fields

The principal means of international collaboration considered for cooperative propaganda and instruction would be the following — .

(1) Exchange of cooperative journals, review and brochures;

(2) Exchange of films, tables or diagrams, figures, statistics, photographic enlargements, indicating the progress attained,

(3) The organization, at certain periods, of International Congresses of Agricultural Cooperation These Congresses should coincide with exhibitions of industrial products, merchandise, tables with diagrams, journals, reviews, brochures and other publications of this type,

(4) Free reciprocal subscription to the publications issued in the languages understood by cooperators,

(5) The organization of international summer courses in the regions where the cooperative movement shows considerable development,

(6) Exchange of cooperative staff,

(7) Occasional cooperative excursions in the important centres of cooperation in the different countries

With the same object in view, considerable attention should be given to cooperative instruction, which should be directed towards the same ideal and the same objectives The elementary, secondary and higher schools of cooperation should contribute to the diffusion of cooperative ideas together with practical knowledge With the collaboration of cooperative bodies, the directors and members of the cooperative societies, these schools will endeavour, on the one hand, to revive the principles of cooperation and, on the other, to cause these principles to be observed in everyday life

III

Having studied the question of the adaptation of agricultural credit to the special requirements of agriculture,

Considering the importance of establishing forms of agricultural credit meeting in the best possible manner the requirements of present-day agriculture,

The Congress recommends —

(1) That in every country, where not as yet in existence, specialized institutions of agricultural credit should be established according to the principles of agricultural reciprocity and cooperation, such as shall ensure them the greatest possible solidarity,

(2) That, in each country the Bank of issue should take into account, the conditions of agricultural production and that it should grant special rates of interest and of periods allowed for the discount of the funds subscribed by the farmers,

(3) That the organization of agricultural credit in each country should comprise a central establishment, granted authority and maintaining considerable liberty of action although under State control,

(4) That in all countries where possible, the insurance and pensions institutions, communes or municipalities, as well as other public bodies should for preference,

on the same conditions, deposit their funds in the cooperative organizations of agricultural credit;

(5) That the central establishments of agricultural credit in the different countries should maintain close relations with each other by means of Congresses and Conferences, in which may also participate the International Institute of Agriculture, the special Commission of Agricultural Cooperation of the International Commission of Agriculture, the members of the International Conferences of Agricultural Credit, as well as other International Economic Conferences, and that by means of joint publications, these establishments shall constitute a very valuable source of information and international documentation.

The Congress also recommends the establishment of the closest possible collaboration between the institutions of agricultural credit and the cooperative sales organizations, as well as all other types of cooperation

IVth Section — *Plant production.*

The Congress, in reference to the resolutions of the 16th International Congress of Agriculture held at Budapest in 1934, takes note of the measures already adopted in the different countries to obtain an effective protection of selected and original varieties of cultivated plants

The Congress fully approves of the enquiry in course at the International Institute of Agriculture, Rome and requests the Institute to call together, as soon as possible, a Conference of experts for the purpose of drawing up the international Convention provided by the resolution adopted at the 13th General Assembly of the Institute in 1936

In the meantime, the Congress recommends interested, and especially neighbouring, countries to come to reciprocal agreements on the protection of the results of breeding work by applying, as far as possible, the principles of the Berne International Convention with regard to the registration of trade-mark and the names of the varieties Naturally, it shall only be possible to protect varieties of considerable value

In order to facilitate these agreements, it is indispensable that the interested countries should endeavour to limit the number of their varieties and to apply the principles of protection of the results of breeding work

Vth Section — *Vine-growing*

I.

Considering the importance of a documentation, kept up-to-date every year, on the production costs of table and wine grapes in all wine-growing countries,

considering that it is the duty of the official services of the Ministeries of Agriculture and the Offices of Farm Accountancy in each country to give their assistance in the establishment and control of these statistical data,

considering that no satisfactory conclusion may be drawn from the information received up to date, without the adoption of a uniform programme and standard control, giving scope for exact comparisons and fruitful studies on the production costs of wine throughout the world and the possibility of reducing cost prices;

considering on the other hand, that it is only right, as has been established by French legislation, that the producer should derive from the cultivation of his vineyard a profit which at the same time allows him to take into account the returns obtained on his capital and the necessary sums required for the upkeep of his home, that it is advisable in these conditions, to add to the total expenses actually involved, a sum known as the " social price ", which should be incorporated in the annual account of expenses, the sole means of ensuring the systematic cultivation of wine-growing estates

A — The Congress recommends that the International Wine Office should establish, in collaboration with the International Institute of Agriculture, a questionnaire, as detailed and exact as possible, which shall be forwarded each year to the Governments and Offices of Farm Accountancy in producing countries. In establishing the minimum cost of production, this questionnaire should take into consideration

(*a*) the analysis of costs incurred, during the year of production, by the winegrower These expenses should comprise all the amounts actually disbursed or incurred by the producer (manual labour, raw material, fertilizers, stabling, taxes, insurance, etc),

(*b*) the sum known as ' social price ", corresponding to the minimum of that necessary to ensure the normal life of the vine-grower and his family

These two tables shall be established for each wine-growing country per hectare and hectolitre, and calculated on the basis of the gold franc, so as to facilitate useful comparisons,

B — The Congress also recommends all wine-growing countries to seek some means of indemnifying vine-growers against serious damage caused by unavoidable and exceptional disasters (frost, hail, etc) and in this way, to ensure them the greatest possible security in the working of their estates

II

A — As regards the study of the establishment of wineyeard records and an international oenological documentation for wineyards,

taking into consideration that it is advisable to adopt every suitable means of bringing about the establishment of exact statistics considering that the value of these statistics is sufficiently indicated by the necessity of solving the fundamental problem of the establishment of accurate statistics, affording the means of following, year by year, region by region, country by country, the course of wine production and thus allowing Public Authorities the possibility of taking in time the measures for protection indispensable for the protection of the products of the vine and their sale

The Congress requests the different wine-producing countries, to take, within their respective frontiers, the necessary measures for establishing official statistics of the area under vine cultivation and of the annual harvest of wine and grapes by means of Vintage Records in the most suitable form and in conformity with the legislation of each country, but the general scheme should be uniform for all countries, in order that the centralization of all data may be facilitated

The Congress requests the International Institute of Agriculture, Rome, to convoke a Conference of experts, which might be held at the Institute in December, 1937, and would bring together the most highly qualified technicians for the purpose of establishing the project for an International Diplomatic Convention, to be submitted for approval during the course of 1938, to the diplomats, themselves, also meet at the International Institute of Agriculture

The International Wine Office should participate in these two Conferences, the secretariat and organization of which shall be entrusted to the Secretary General of the International Institute of Agriculture and the Director of the International Wine Office, in the same way as was arranged for the International Convention on the unification of methods of analysis of wine.

B. — In order to afford all wine-producing countries the possibility of using a common language as regards vine-growing wine production, the Congress recommends the establishment of files of a standard type.

This standard type, as it figures in the appendix of the main report of Messrs Douarche and Hot, should be forwarded by the International Wine Office to each of the Governments of the wine-producing countries, in order that these files may be completed every year, at the end of the grape season, and afterwards collected by the communes, departments or provinces, and centralized at the Ministeries of Agriculture in the respective countries, who will then make a comprehensive summary for each country to be then published by the International Wine Office

VITH SECTION. — *Livestock production*

I.

The Congress, having studied the part played by vitamins and mineral salts in the feeding of farm animals,

considering that an insufficient balance of vitamins and mineral salts weakens resistance, causes metabolic disturbances and hinders growth and the faculty of normal production,

emphasizes the very great importance of an optimum balance of vitamins and mineral salts

The Congress considers, that in the future, the whole subject of forage crops should be made the object of systematic research studies, both in respect of the quantitative content of forage crops in vitamins and mineral salts, and also of the optimum requirements of farm animals in vitamins and mineral salts

This research work should take into account, besides the optimum value in vitamins and mineral salts not only the value of forage crops as regards source of energy, but also the biological value of the proteins and mineral salts

II

The Congress, confirming the resolutions adopted by the International Congress of Agriculture held at Budapest in 1934, and taking note of the action taken in view of the formation of an International Committee for the proper exploitation of the horse, requests all the organizations interested to participate in the constitution of such a committee, its object being —

(1) To collect all available information, conducing to

the accurate determination of the conditions under which horse traction may be rendered more economical than mechanical traction and their limits

the increase, by the application of corresponding measures, in the utilization of the horse, both draught and saddle, in every field of human activity,

to show the importance of maintaining and increasing the stocks of horses and mules with a view to improving the agricultural market,

(2) To communicate these data regularly to all members of the Committee,

(3) To establish an organization by means of which the interested parties may discuss the execution of joint measures, exceeding the national limits, which would bring about an increased utilization of the horse.

The Congress invites the International Commission of Agriculture to propose an International Committee for the improved utilization of the horse, and, if circumstances permit, to bring about the constitution of the same.

VIIth SECTION. — *Agricultural industries.*

I.

Having studied the problem of the convertion of raw materials into synthetic wool and cotton, and similar products, and the consequences of this convertion from the commercial point of view,

(1) the Congress notes, with satisfaction, the technical progress made in the recent use of agricultural products in the manufacture of textiles, a particularly important development for those countries with a shortage of the classical textile products;

(2) and recommends that technical research work on these subjects shall be continued, taking into consideration the interests alcke of the agricultural population and of national economy.

II

Having studied the problem of the replacement of mineral oils by fuels of vegetable origin,

(1). the Congress notes that under present conditions, many vegetable products may be converted by agricultural industries into different fuels, which either alone or mixed with petroleum and its derivatives are suitable for fuelling motors employed in agriculture, commerce, industry and touring.

From a technical point of view, fuels of a vegetable or forest origin compare favourably with fuels of mineral origin or synthetic fuels

It is to the interest of every country to increase the utilization of industrial plant products which play an important part in crop rotation or which constitute sub-products, often unused

An extension of this utilization is to be seen in many countries, even though in certain cases this would appear to be uneconomical This disadvantage could be largely compensated by the value of the wealth created, by the social benefits accruing and by the its importance from a national point of view Agricultural production being continually renewed, this production is of considerable advantage to the world, as the exploitation of mineral fuels results in an impoverishment as it is an utilization of reserve stocks continually decreasing,

(2) the Congress notes that the results obtained cannot be ignored by other States, as they show a manifest increase in the capacity of world agricultural production and in agricultural prosperity in general Consequently, this problem takes on a character of international solidarity which brings it within the scope of international Congresses.

However, every country will have to consider the problem of fuel of agricultural origin, taking into account the national possibilities as regards raw materials, both in regards cost price and their possible utilization without affecting other requirements already covered;

(3) the Congress trusts that the utilization of agricultural products as a basis for fuels will continue to develop in all countries

VIIIth SECTION. — *Woman in the life of the countryside.*

I.

The Congress, considering that the physical wellfare of the agricultural population is of the highest importance, not only for agriculture itself, but also for the whole nation, has examined the conditions under which the rural populations of the different countries live, particularly from the aspect of —

living quarters (including hygiene and water installation);
maternity and child welfare.

The Congress notes that insufficient attention is given to these points Therefore, the Congress requests the womens' organizations to make a detailed study of these questions in order to obtain full information on the reasons for this situation and to serve as a centre of useful information for those responsible for the health of the nation.

II

The Congress notes that hygienic conditions in the country depend considerably on the economic conditions of the farm family It requests the organizations represented at the Congress to make every endeavour to improve the economic situation of the rural population in their respective countries

The Congress takes note that, in view of its importance, the VIIIth Section proposes again to examine this question at the next Congress, in order that the methods employed and the results obtained may be reciprocally discussed

INTERNATIONAL COMMITTEE OF AGRICULTURAL LIBRARIANS — The International Committee of Agricultural Librarians, established on the occasion of the 1st International Congress of the Agricultural Press (1935) and affiliated to the International Federation of Agricultural Technicians (Rome) and the International Federation of Librarians Associations (Geneva), will hold a meeting for the first time at Paris on 17 August, at 2 30 p m. in the « Maison de la Chimie », 28 Rue Saint Dominique The programme is as follows —

(1) Report of the Secretary on the work carried out by the Committee,
(2) Discussion and approval of the Statutes Project drawn up by Miss C R BARNETT, President of the Committee,
(3) Exchange of views on the future activity of the Committee

Fuller details may be obtained from the Secretary of the Committee Mr S von FRAUENDORFER, Librarian of the International Institute of Agriculture, Rome

THE IMPERIAL EXHIBITION OF FRESH AND CANNED FRUITS IN ENGLAND — The 1937 Imperial Exhibition of Fresh and Canned Fruits, which attracts competitors from all parts of the British Empire, will be held at Bingley Hall, Birmingham, England, from 20 to 28 October

BOOK NOTICES *

SCHEFFER, Fritz, *Agriculturchemie, Teil a Boden* Sammlung chemischer und chemisch-technischer Vorträge Neue Folge Heft 35 Stuttgart 1937, Verlag von F Enke, 113 p., 8 illustrations

[This number, dealing with soil, constitutes the first volume of an *Agricultural Chemistry*, the 3 or 4 further volumes, which will treat on plant nutrition, manures, soil microbiology and eventually plant improvement, will follow at a subsequent date

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* Under this heading are included short synopses of books received for review

German literature does not lack treatises on pedology. Mention may be made of the well-known *Soil Conditions and Plant Growth* by RUSSELL-MÜLLER, of which a second edition appeared in 1936, and the recent publication of TORNAU, treating on the same subject (see this *Bulletin*, 1936, No. 5, p. 199 and No. 7, p. 278).

The new book of SCHEFFER more or less strikes a balance between these two publications It is neither academic nor written for the layman, but is most instructive. The A. has divided his work into three parts soil formation and structure, factors affecting soil fertility and types of soils It is this latter part and more especially the chapter regarding the relation between soil and climate, which is considered to be of the greatest interest. The knowledge of the different types of soils, studied in detail by GLINKA and his Russian collaborators, has not only a scientific but also a definite practical importance The practical worker greatly values a soil of the " tchernoziom " type, and consequently every endeavour is made for the purpose of gradually imparting to the land, the typical characteristics of black soil

The book contains in the form of an appendix, a very interesting list of the more important types of soils from an agricultural point of view].

N. G.

TIERHEILKUNDE UND TIERZUCHT. Eine Enzyklopädie der praktischen Nutztierkunde, Berlin und Wien 1936, Ergänzungsband, Lieferung 54 bis 56.

[The supplementary volume of the excellent Encyclopaedia edited by Prof V. STANG of Berlin and Dr. WIRTH of Vienna, which has already been mentioned on several occasions in this Bulletin (*inter alia*, No 2, 1937 pp 65, 66) has now been completed by three final numbers, recently published It has already been stated that the object of the supplementary volume was to bring the articles contained in the Encyclopaedia itself, up to date by the additions which the very rapid progress made in science has rendered necessary The last number of this supplementary volume, besides the articles given on a large number of animal diseases, contains a long article on animal feeding, according to the more recent theories and experiments, some detailed reports on animal genetics, research work on body structure, heredity, the studies carried out on twins, control of yield, etc. It may be seen therefore, that the Encyclopaedia is continually becoming more complete, and consequently, increasingly indispensable for every research worker in the field of animal husbandry and veterinary science.

In a series of studies that the German Corporation of Agriculture has published since 1935, two volumes have appeared which are of particular interest to the practical poultry keeper These are the volume on poultry husbandry which gives a description of all the problems regarding the maintenance of poultry, incubation, raising chickens, selection and also a chapter on poultry diseases This latter chapter was written by Dr HARTWICK, while the remainder of the volume is from the pen of Mr Johannes JAGER, Director of the Institute of Poultry Husbandry, Halle Cröllwitz. The pamphlet in question is undoubtedly of considerable value to the poultry keeper, who in consequence of the very comprehensive manner in which this brochure is written, will easily obtain all the necessary information for up-to-date poultry raising.

Another brochure published in the same series, deals with the diseases of young cattle, and like all the other pamphlets of the this series, its object is to instruct the farmer, and not to make a scientific report This latter volume was written by Dr. Kurt EHRLICH, Chief of the Veterinary Service Section, Hanover.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

GRONINGER MAATSCHAPPIJ VAN LANDBOUW. Groninger maatschappij van landbouw: gedenkboek 1837-1937. [Groningen, Gedrukt door Gebr Hoitsema], 1937. XIX, 603 p.
[Société groningoise d'agriculture: livre jubilaire 1837-1937].

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND. Transactions. 5th series. v. 49. Edinburgh, W. Blackwood & sons, 1937.

Education.

AGRICULTURAL PROGRESS. The Journal of the Agricultural education association. v. 14, Part. 2. 1937. Cambridge, W. Heffer & sons Ltd., 1937. 172 p.

DE VECCHI DI VAL CISMON, CESARE MARIA. Bonifica fascista della cultura. Milano, A. Mondadori, [1937]. 718 p.

WELSH JOURNAL OF AGRICULTURE. The journal of the Welsh agricultural education conference. v. 13. Cardiff, University of Wales press board, 1937. 347 p.

General agronomy.

BASTONI, G. Lezioni di agronomia per studenti di agraria. Brescia, G. Vannini, 1937. 363 p.

UNITED STATES. National resources board. Land planning committee. Soil erosion. A critical problem in American agriculture. Washington, Govt. printing office, 1935. V., 112 p. (Supplementary report. Part. 5).

Fertilizers.

COMMERCIAL FERTILIZER. Atlanta. 1937 « Year book ». Atlanta, Georgia, [1937], 142 p.

Plant protection.

CUNNINGHAM, G. H. Plant protection by the aid of therapeutants. Dunedin, New Zealand, J. McIndoe, printer, 1935. XXVI, 243 p

MASSEE, A. M. The pests of fruits and hops London, C. Lockwood & son, [1937]. 294 p.

SCHIMITSCHEK, E. Schlussel zur Bestimmung der wichtigsten forstlich schädlichen Käfer. Wien, J. Springer, 1937. VI. 67 p.

Crops of tropical and subtropical regions.

CAMPESE, O. Colture tropicali e lavorazione dei prodotti. Milano, U. Hoepli, [1937]. 2 v.
v. 1: Generalità. 1937. 129 p.
v. 2. Caffè, cacao, hevea e thè. 1937. 415 p.

Horticulture

GHIDINI, L. Coltivazione cittadina di piante e fiori nei giardinetti e cortili e sulle terrazze, balconi e finestre. Milano, U. Hoepli, 1937. 403 p.

MANN, M. Pflanzenbaulehre der Topfpflanzengärtnerei Stuttgart-S., E. Ulmer, [1934-1936]. 3 v. (Grundlagen und Fortschritte im Garten- und Weinbau hrsg.: C. F. Rudloff. Hfte: 2, 5, 25).
v. 1: Die Erdarten der Topfpflanzengärtnerei. 1934. 67 p
v. 2: Die Kulturgefässe. Die Ernährung der Topfgewächse. Das Verpflanzen. 1935. 73 p.
v. 3: Die Wachstumsfaktoren. Wasser und Luft. 1936. 59 p.

MASSACHUSETTS HORTICULTURAL SOCIETY. 1937 Year book of the Massachusetts horticultural society with the Annual reports for 1936. [Boston], [1937], 108 p.
SANTE, E. Das deutsche Kirschenbuch: die erste umfassende Darstellung des Kirschenbaues für Obstzüchter und Gartenfreunde. Frankfurt (Oder), Trowitzsch & Sohn, [1936]. 119 p.

Viticulture.

MUTH, FR. und DR. BIRK. Lehrbuch des Weinbaues und der Kellerwirtschaft für Winzer und Küfer, Wiesbaden, R. Bechtold & Co., [1935]. XII, 279 p.

Forestry.

NEUBAUER, W. Zur Theorie und Praxis der Waldwertrechnung. Wien, C. Gerold's Sohn, 1937. 292 p. (Institut fur Holzforschung an der Hochschule fur Bodenkultur in Wien).

Animal Husbandry.

BÄSSMANN, F. Deutsches Rinderleistungsbuch. Berlin, [Selbstverlag des D. R. L. B.], 1937. 419 p. v. 3
BONADONNA, T. Le basi scientifiche e le possibilità applicative della fecondazione artificiale negli animali domestici. Ricerche e studi italiani, traduzione adattata e commentata delle principali opere straniere. Brescia, G. Vannini, 1937. v. 1.
MUSELER, W. Reitlehre. 8 erweiterte Aufl. Berlin, P. Parey, [1936]. 190 p.
SCHULZ, TH. Zahlen zur Geflugelwirtschaft Deutschlands und der Welt. Berlin, F. Pfenningstorff, 1937. 64 p.
TSCHAN, A. Die Kaninchenzucht in der Schweiz. Ein lehr- und Handbuch fur schweizerische Kaninchenzuchter und Kaninchenhalter hrsg. vom Schweizerischen Kaninchenzuchtverband. Zofingen, Graphische Anstalt Zofinger Tagblatt, [1936]. VIII, 227 p.

Rural Engineering.

DAVIS, K. C. Farm enterprise mechanics: project equipment and repair. Chicago, J. B. Lippincott co., [1935]. IX, 408 p.
SCHEMPP, K. Wurttembergische Dunglege. Ihre Anordnung, Grossenbemessung, Einteilung und Eingliederung in die Gehofte. 2 neubearb. Aufl. Hannover, M. & H. Schaper, 1936. 50 p.

Agricultural Industries.

NILSSON, J., H. RYDE. Mjölken: dess behandling och bedomning. Stockholm, C. E. Fritze, [1937]. 86 p.
[Milk treatment and control].
ODHE, T. Skogen blir kläder. Stockholm, Kooperativa forbundets bokforlag, [1937]. 160 p.
[Clothes from trees (Production of artificial silk)].

Various.

BALDACCI, E. Vita privata delle piante. Milano, V. Bompiani, 1937. 243 p. (« Avventure del pensiero », v. 17)
UNITED STATES. National resources board. Land planning committee. Planning for wildlife in the United States. Washington, Govt. printing office, 1935. V, 24 p. (Supplementary report. Part. 9)

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

*ted between 7.25 and 7.35 p. m. on the following days: **Thursday**, English; **Friday**, German; **Saturday**, Spanish; **Tuesday**, Italian; **Wednesday**, French.*

They will be broadcast from Rome 1 (420.8 m.) and Rome 2 RO (25.4 m.).

The hour of broadcasts is in Central European Time, which is one hour ahead of Greenwich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

THE INTERNATIONAL CHARACTER OF WHEAT AND THE DIFFUSION OF THE DIFFERENT VARIETIES OF WHEAT THROUGHOUT THE WORLD

Introductory.

Since 1912, MM. PETRI and FERGOLA have studied the question of the legal protection accorded to the varieties of cultivated plants. In 1931, M. SCHRIBAUX on the occasion of the XVth International Congress, held at Prague, clearly indicated that this was a problem of international importance. The Congress, among the resolutions adopted, requested the International Commission of Agriculture and the International Institute of Agriculture to examine the question, and since this period continuous steps have been taken to promote the further study of this problem at all the various agricultural congresses, and in particular at those concerned with Genetics and Floriculture. The International Institute of Agriculture, in compliance with these resolutions, in 1932 considered the matter, showing it in its true light and proportions, (see the *International Review of Agriculture*, 1932, No. 6, p. 225), and so effectively, that on the occasion of the General Assembly in October, 1936, it was decided " to undertake an investigation of the problem of the protection of proprietary rights in new varieties of cultivated plants, and to consider the desirability of convening a Conference of Experts to take into consideration the possibility of drafting an International Convention relating to such protection ». Effect is now being given to the terms of this resolution of the Assembly.

Meanwhile, it is of some importance to consider, for example, in the case of wheat the most important of all cultivated plants, the value of the exchange of varieties and also the value of its regulation.

In this case, it is unnecessary to carry research studies back over any considerable period, The cultivation of varieties is continually changing, and a variety which was important, some years ago, may to-day be scarcely known at all. For this reason, in this article only a brief survey will be given of the past history of the subject, for which moreover but little definite information is available, and greater attention will be paid to the changes which have taken place in recent years.

Original source of wheat and areas of diffusion of the varieties.

VAVILOV considers that the original source of soft wheat is Central Asia, that is to say, N. W. India, Afghanistan, Tatchikistan, and Usbekistan, and as the original source of durum wheat, on the one hand, the Mediterranean centre for *Triticum durum* subsp. *expansum*, and on the other, the Abyssinian centre for *Tr. durum* subsp. *Abyssinicum*. ORLOF also considers that for durum wheat, the chief place of origin of the cereal lay on the Mediterranean coast of North Africa. Consequently, Central Asia and North Africa may be taken as being the centres of origin of these two species. It was from these starting points that they began their triumphant march throughout the world. However this period, may be considered as the prehistorical stage in wheat cultivation.

Coming to the historical period, it will be seen that durum wheat had already passed beyond the limits of North Africa, spreading from the opposite shores of the Mediterranean towards the north, and finally penetrating into present day Russia, where it occupies the valleys of the large rivers. Soft wheat, on the other hand, coming from Iran, became established in Asia Minor and in its march towards the west, the Mediterranean basin. These were the regions where wheats were found at this period, and they might be called « secondary regions of expansion ». Since this time and up to a quite recent period, wheats have attained the " tertiary regions of expansion " Northern Europe, Siberia, South Africa, America and Australia. A further expansion of wheat varieties in the arctic regions of Canada and Russia, and in the tropical zones of Africa, may now be noted. The word "varieties" is used designedly, as it is through superior *varieties*, either natural or artificially obtained, that wheat has become predominant over vast regions.

As has been noted, wheat is essentially a cultivated plant belonging to the Old World, the New World only becoming acquainted with wheat through Europe and its high importance in this part of the world is of quite recent date.

VAVILOV divides soft wheats into three groups, the most important by far being the Indo-European or " Aryan " group (*Indo-europaeum*). This group, which corresponds to the fifth and sixth groups of PERCIVAL, comprises the great majority of the types cultivated in Europe and Siberia A considerable number of the types belonging to this group are found in Afghanistan and the Pamirs. In these isolated mountainous regions, the Aryan varieties, cultivated since time immemorial, still persist. VAVILOV, quoting UJFALVY (*Les Aryens au nord et au sud de l'Hindou-Kouch*, Paris 1896), says, " It is impossible not to connect this fact with the origin of the Aryan, i. e. the Indo-European civilization. The inhabitants of the regions of the Pamirs and North Afghanistan, show distinctive characteristics of their Aryan descent ". The Aryan group of soft wheats presents a wide diversity of forms, especially in the cultivated awnless varieties, which fact, according to VAVILOV may have some connexion with the vast area over which they are spread.

When Asia Minor is reached soft wheat is found to have penetrated into the ancient centres of extensive cultivation. Asia Minor formed the connecting link by which wheat entered Europe by land; but it was seaborne trade which brought about for wheat a greater expansion and diffusion among all regions practising agriculture. In this way, as the peaceable companion of traders and also of famous conquerors, wheat passed from region to region. It spread beyond the frontiers of tyrants, and when the conquerors had disappeared, and their civilization no longer existed, wheat remained. The discovery of America by Columbus and the Cape of Good Hope by Vasco de Gama, opened enormous new fields for wheat expansion though the new area was only very gradually occupied. In fact, the extensive development of wheat cultivation in Canada, in the northern hemisphere, and in Australia in the southern hemisphere, is a recent phenomenon, connected solely with the success obtained by the introduction or establishment of certain varieties. In Canada, for example, wheat cultivation has only recently attained its present world-wide importance; yield increased from 36 million qx· in 1910 to 72 million in 1920, and to 108 million in 1930, thus increasing threefold in 20 years. A similar increase took place in Australia, from 26 million qx. in 1910 to 39 million in 1920 and 58 million in 1930, the amount thus in 20 years being more than doubled. In these two countries, this increased development was due to new early varieties, with which it was possible to extend wheat cultivation to regions where the vegetation period is very short, either as in Canada, because of insufficient heat, or, as in Australia, in consequence of the lack of moisture.

Introduction of varieties. Theoretical considerations.

There are some varieties which might be termed " cosmopolitan ", that is to say, varieties which are easily adaptable to different environments, and may be propagated in countries varying considerably as regards climatic conditions. On the other hand, certain varieties may be called " specialized ", and only adapt themselves to special conditions in particular regions. The first group comprises *Victory* oats which has effectively " conquered " soil conditions of the most widely differing types. What are the qualities which form the basis of this important faculty of adaptation ? These qualities are not easy to ascertain. There are however some preponderant, in this respect such as early ripening. Some early varieties not only prove successful in arctic regions, but also in regions lying at very high altitudes, as well as in areas, where because of insufficient rainfall, only a short vegetative period is possible. On the other hand, for example, resistance to rust, in spite of the world-wide importance of this disease, is a matter of local importance only, as it is connected with certain bio-types of rust, and is non-existent in the case of other bio-types.

The " high productivity " quality being of an extremely complex character, is subject to very varied conditions; it is difficult to predict, on the basis of a knowledge of local conditions, however exact, whether this quality will be manifested in a given locality or not. It is especially important, in order to be able to foresee the successful cultivation of a certain variety in a given locality, to ascertain what are the special requirements of the variety in question. But, as it is already difficult to obtain an intimate knowledge of the processes of animal life, it appears to be practically impossible definitely to ascertain the highly sensitive working of the biological processes which, as a result of the individual reaction of the plant to environmental conditions, determine the rhythm and degree of development, and consequently the proportion of quantitative yield of the given variety. For 15 years only has science recognized the importance of such a fundamental phenomenon as photoperiodism. The reaction however of the plant to the duration of the daylight period determines not only the success or otherwise of this plant, but sometimes, the definite possibility or practical impossibility of cultivating the same under given conditions. Experiments in Australia, for example, have shown that the reason for the very poor results obtained with English varieties is due to unsuitable photoperiodism, while at the same time Australian varieties do not succeed in England. The influence of latitude on growth has been known for some considerable time, but, it is only recently, that by means of experiments, this influence has been exactly determined.

The geographical experiments made in Russia, have shown that for this country, as a rule foreign varieties, even when originating in zones with a corresponding climate, are of little value. This fact has also been ascertained in India, Tunisia, Hungary and other countries with a long agricultural experience. There are, however, some exceptions to this rule, for example, the *lutescens* 062 variety of SARATOV, succeeded in spite of all forebodings to the contrary, on the Pacific coast of the Far-East, where climatic conditions differ considerably. The Australian variety *Aurora* shows successful results in Sweden, Finland and in the north of Russia in Europe. Argentine varieties, which in their country of origin grow under practically subtropical conditions, grow well also in the Leningrad, and also in more northerly regions. Another example of an imported variety giving unexpectedly successful results is *Hibrido L4* introduced from the north of France into Spain.

The results obtained from theoretical research work planned to express the values of the climatic factors by tables of figures (climoscope), by curves (climogram), or by indices, were not very striking; an endeavour was made by these means to compare, on the one hand, different climates one with the other, and on the other, the various possibilities offered by the climate of a given region regarding the ecological standards of the varieties intended for cultivation. The " ecograms " of BOEUF in which the ecological standards of a given variety are compared with the climatic conditions of a given region, both expressed by a curve, supply the means of judging, up to a certain point, the adaptability of the variety to the conditions prevalent in the district. These ecograms, however ingenious they may be, are the expression of a restricted number of climatic and biological factors only, and also, they give but an incomplete idea of the question. Climograms are determined by meteorological means and do not take into account the extent and frequency of deviations, which may be detrimental to vegetation. For this reason, AZZI in his *Climat du Blé* has paid particular attention to these deviations, by carefully calculating the frequency and importance of harmful meteorological phenomena, and by studying their influence on the different varieties of cultivated wheats.

Varieties from Russia.

It may be definitely stated that the varieties used in the vast cereal growing regions of Russia originated in Asia Minor. In this vast territory which lay open to the penetration of primitive wheat varieties, showing a large number of forms, these wheats were influenced by natural and artificial selection and resulted in a certain number of relatively pure and well defined varieties. The most important varieties of wheat from the aspect of diffusion throughout the world were obtained from the " Russian centre of origin ", including pre-war Russia in Europe and Galicia (now Polish).

The *Turkey* variety, representing the most important type of the group of Crimean wheats, to which also belong the *Kharkof* and *Malakof* varieties, may first be discussed. The name of this variety, or rather its synonym *Turkish Red*, indicates that Asia Minor is the country of origin. This wheat was brought to America by the Russian Mennonites, who, in 1873, settled in Kansas. This was the beginning of the enormous development of the " hard red winter wheat ". In 1929, wheats of the *Turkey* type covered 16 million acres of land, representing 25.7 per cent. of the total area under wheat cultivation in U. S. A. At present, these wheats are declining in value and are being replaced by other types of the *Turkey* variety, improved through selection, such as the *Blackhull*, produced by EARL G. CLARK of Sedgewick in 1912, with which in 1919, 6 million acres in U. S A were cultivated. Another wheat which was also very widely diffused is the *Kanred*, bred from a *Turkey* type, by H F. ROBERTS. This wheat was cultivated over an area of 4 3 million acres in 1924, after which there was a set-back. It gave excellent results also in Argentina.

Other varieties selected from *Turkey* wheat, but of less importance are the following *Nebraska 60*, *Montana 36*, *Karmont*, *Ioturk*, *Iowa 404*, and many others.

The *Red Fife* variety should here be mentioned, J. Allen CLARK, the well-known Director of the Bureau of Plant Industry, U. S. Department of Agriculture, Washington, says in this connection " More striking than the growth of an oak from an acorn is the fact that the vast hard red spring wheat industry in the United States, with all the milling, baking, transportation, and trading dependent upon it, grew from a few seeds saved from a single wheat plant. The origin of *Red Fife* shows how plant breeding cuts across and disregards national boundaries, proceeding to develop products useful to all men and to all nations. The variety that founded the hard spring wheat industry came originally from Galicia, in Poland. From Galicia, it spread to Germany, from Germany to Scotland, from Scotland to Canada, whence it passed to the United States. It was DAVID FIFE, of Otonabee, Ontario, who saved a single plant of spring wheat out of a consignment of winter wheat obtained from a friend in Glasgow. From this single plant came the wonderful variety known as *Red Fife* ".

Red Fife in turn was a parent of three other wheats known throughout the world: *Yeoman* in England, *Federation* in Australia and *Marquis* in Canada. The development of the *Marquis* variety was the greatest achievement in wheat-breeding ever known in history. The diffusion of Red Fife throughout the United States dates back to 1860. In 1919, 750,000 acres were cultivated to this variety, and it was later replaced by still further improved varieties. In Canada, *Red Fife* has constituted the basis of a classification system for wheats, and, owing to its excellent bread making characteristics, it has never been excelled, and has rendered Canadian wheat famous.

In comparison with the *Turkey* wheats and their derivative, other wheats imported from Russia, attained less importance.

In this respect, mention may be made of the *Kota* variety, introduced in 1903, by H. L. BOLLEY of the North Dakota College of Agriculture; this variety improved by selection, covered up to 471,000 acres in 1924; its area afterwards rapidly decreased, and gave place to hybrid varieties. The *Odessa* variety was already cultivated in Minnesota in 1865, this wheat is the result of imported varieties obtained on various occasions from the Odessa region.

Account should also be taken of the *Ladoga* wheat, not so much for the extent of its cultivation as for the part it played as parent plant of varieties such as *Garnet*, *Prelude*, *Huron* and others This wheat was introduced in 1888 and did not originate, like the preceding varieties, in the southern part of Russia, but in the north, that is to say, in the Lake Ladoga region near Leningrad.

In U. S. A., the durum wheats originating in southern Russia have only been extentively cultivated since 1900. The *Arnautka* was introduced by the Department of Agriculture in 1864, and is diffused in Texas and North and South Dakota. *Kubanka*, introduced in 1900 by the Department of Agriculture, was very popular in Great Plains; it may be successfully adapted to both dry and humid areas; it has thus played an important part in the diffusion of durum wheats in U. S. A. The varieties *Acme* of CHAMPLIN, *Nodak* of R. W. SMITH, and *Kubanka Ottawa 37* were obtained from this source Finally, in 1903, M. H. L. BOLLEY introduced the *Pentad*, a variety which gave excellent results and in 1929, a million ha. were under cultivation. In 1900, Mr. BOLLEY, had also introduced the *Monad* variety, originating in the Saratov region.

Varieties from the Mediterranean Basin.

In regard to the first wheat varieties introduced into America, a parallelism may be observed between the origin of the introduced varieties and the different races which have formed the American people, although these introductions were sometimes independent of human immigration. Thus in North America, these early varieties came chiefly from northern and central Europe, whe in South America, the wheats came from the Mediterranean Basin with its Latin population. It must be confessed that the manner in which wheat varieties were introduced into Latin America is rather difficult to establish. The Mediterranean Basin, which has also provided some important varieties for North America, has supplied South America with the *Barletta*, considered to be an excellent wheat. This variety originally came from Italy, but was subsequently modified through natural selection, and has now become a characteristic Argentina variety. The original variety had however to relinquish its leading position about 20 years ago, when selection work began among the varieties obtained, mention may be made of *Lin Cale*, renowned for its good baking quality, and bred by W. O. BACKHOUSE, of the Ministry of Agriculture, Argentina. It would appear, judging from its external appearance, that *Americano 44 d.*, cultivated since 1918, is also derived from *Barletta*. This variety was obtained by BOERGER, La Estanzuela, Uruguay. It is probable, though not fully proved, that another well-known variety coming from this breeding centre, the *Pelon 33c*, is also of Mediterranean origin. These varieties, before being replaced by other superior wheats, were extensively cultivated in Uruguay, and under the names of *Universal II* and *Favorito*, have also become very popular in Argentina. Thus during 1925, the year of its widest extension, *Pelon 33-Favorito* occupied $^{1}/_{3}$ of the total area sown to wheat in the La Plata region.

Beside varieties of Mediterranean origin, the *Kanred*, a variety from a Russian source, has also been established in the Plata region; this wheat was first improved in the United States, whence it was introduced into Argentina. This variety has become so well adapted to the conditions of the country, that a certain region has come to be known as the " Kanred zone ". According to the standardization of Argentine wheats, it is included among the best wheats.

Varieties of Mediterranean origin are also to be found in U. S. A. A variety known as *Mediterranean* is already mentioned in American publications in 1842; at first, this variety spread rapidly through New York State, and then passed westwards, and was highly valued in Texas. This variety which is not particularly homogeneous, is undoubtedly the product of several importations made on various occasions. After having covered an area of 2,700,000 acres in 1919, this figure declined approximately to 500,000 acres in 1934. The area abandoned by this variety was taken up by selected strains; thus, in 1918, the *Denton* variety as the selected from the *Mediterranean*. But, already at a much earlier period, in 1862, the variety called *Fultz* was obtained through mutation of the *Mediterranean* variety, it cannot however be definitely assumed that the *Fultz* variety as well as the strains and hybrids derived therefrom, are of Mediterranean origin. On the other hand it may be supposed that the *Soft Red Winter* class is derived from a Mediterranean stock, while the *Hard Red Winter* class, as already mentioned, derives from wheats of Russian origin.

The majority of the wheat varieties successfully introduced, and mentioned in this article, contain various forms. In fact, the introduction of a group of wheats has a better chance of succeeding that a pure strain, because among the numerous forms comprised in the group, there are some which by natural selection become adapted to the conditions of the country, and continue to survive while others are eliminated. But there are exceptions to this rule, and the example of *Kanred* transplanted from the United States to Argentina, mentioned above, is very significant.

Similar cases of transplantation are found also among new improved varieties, naturally pure lines with a uniform phenotype but endowed with a certain plasticity because of their complex genetic constitution, including in general the properties of different parent plants originating in various countries. This subject will be again discussed later in this article. Reference may be made here, to successful results obtained with the hybrid varieties of STRAMPELLI in South

America, Spain and Greece, and with the varieties of FARRER in India, South Africa, Argentina and the United States, and also with the new varieties from Svalöf in Europe.

Parent plants from Russia.

The transplantation of wheat populations and selected varieties was of very considerable importance during the period when the way to obtain improved varieties by means of hybridization was as yet unknown. To-day, it is recognized that, while intro duced varieties may perhaps replace native varieties, it is unlikely that they can dompete with the varieties obtained by hybridization in the country itself.

Referring once again to North America, there is here to be found *Marquis*, the most typical example of a hybrid of international constitution. This variety was obtained by SAUNDERS in 1892 at the Central Experiment Farm, Ottawa, by crossing *Red Fife* with *Hard Red Calcutta*, One of the parents originated in Galicia and the other in India. *Marquis* had a phenomenal success and for many years, it was the predominant variety in Canada. Introduced into the United States in 1912, it rapidly covered 12 million acres, that is 19 per cent. of the total area under wheat cultivation. It is absolutely dominant in the *Hard Red Spring* class The *Marquis* variety, because of its early ripening and good quality has been tried throughout the world.

At the North Dakota Experiment Station, the *Marquis* variety was crossed with *Kota*. The resultant variety is called *Ceres*, and was distributed for cultivation in 1925, in 1933, 4 million acres were grown to this variety in U. S. A. The variety has also been found to be readily adapted to Argentina and Canada, where, in 1933, a million acres were under cultivation.

Another variety originated by SAUNDERS is *Prelude*. Its parentage is as follows:

Ladoga
× (1888) *Alpha*
White Fife (1892)
Hard Red *Fraser*
Calcutta × (1903) *Prelude*
Gehun

Among the ancestors figuring in this diagram, *Ladoga* and *White Fife* are of Russian, the *Hard Red Calcutta* and *Gehun* of Indian origin. The variety is famed for its early ripening and also because it served as a parent of the *Reward* variety.

The latter variety was obtained by SAUNDERS in 1911 by crossing *Marquis* with *Prelude*. It will be recalled that the *Marquis* variety is itself derived from *Red Fife* and *Hard Red Calcutta* and consequently the latter variety enters twice into the composition of *Reward*. The *Reward* variety was distributed for cultivation in 1928, and in 1933, a million acres were under cultivation in Canada, it was also introduced into other countries, and chiefly into the United States. *Marquis* was also a parent of other very important varieties, such as: *Hope*, *Reliance*, *Thatcher*, *Comet* and *Tennmarq*. The well-known *Garnet* variety, also obtained by SAUNDERS, resembles the *Reward* variety closely as regards composition. The mother plant which is *Preston* was derived from *Ladoga* and *Red Fife*; the *Preston* variety was extensively cultivated in Canada and U. S. A., but was soon superseded by *Marquis*. Mention may also be made of the *Huron* variety, obtained at the Central Experiment Farm, Ottawa, by the crossing of two Russian parents , *White Fife* and *Ladoga*.

These crosses have often been re-introduced into the country of origin of their parents. Such is the case with the *Huron* variety which was re-introduced into Russia, and subjected to selection at the Diétskoié-Siélo Station. The resultant variety was *T. S. A. 37*. In the same way, *T. 7013* was obtained from *Preston*, also in Russia; the two varieties have become well established in the Leningrad region and the Far East. The *Prelude* variety has also been successfully cultivated in North Russia and, while bringing back to Russia its Russian germ plasm, it carries with it also germ plasm of Indian origin.

Parent plants from the Mediterranean Basin.

Parent plants, of Mediterranean origin, have played a considerable part in the United States; for example *Fulcaster*, one of the best varieties is a successful hybrid of *Fultz* and *Lancaster*, both of Mediterranean origin, obtained by SCHINDEL in 1886. In 1929, 2 ½ million acres were under cultivation with *Fulcaster* wheat, but it has since declined. It has been partly replaced by the *Nittany* variety, selected from the *Fulcaster* in Pennsylvania, and partly by *Forward*, also selected from *Fulcaster* at the Ithaca Experiment Station.

World agriculture is indebted to the Mediterranean zone for many other important varieties, *e. g.*, the hybrids obtained by STRAMPELLI, of which the best known are *Mentana*, *Ardito* and *Damiano*. STRAMPELLI combined a Mediterranean parent with Dutch and Japanese parents. The varieties obtained from this exceptionally successful crossing owe their hardiness to the Mediterranean element, their productivity to the Dutch element and their exceptional precocity to the Japanese element. The STRAMPELLI varieties, after having exerted a considerable influence on Italian agriculture, penetrated into other countries of the Mediterranean Basin. *Mentana* and *Ardito* are extensively cultivated in Spain, chiefly in the two Castiles, the *Ardito* variety is highly prized on account of its early ripening in the eastern part of the country. It was also introduced together with *Mentana* into North Africa, and the latter has given results in Tunis. Numerous varieties of STRAMPELLI have been introduced into France and in certain regions have shown considerable development. Other varieties introduced into France were *Rieti 11*, *Gentil Rosso* of TODARO, and *Gua*, imported from Italy. The *Mentana* variety was very popular in Greece, where the Salonica Institute for Plant Improvement, beginning in 1929, organized imports on a large scale, and undertook control of breeding work. The STRAMPELLI varieties also crossed the ocean and penetrated into South America, where before being rejected owing to their poor baking quality, they had a striking success, and, even in 1934, some samples of the Argentine commercial type *Rosario No. 3* were found to contain 53 per cent. of *Ardito*. In accordance however with the new classification standards for Argentine wheats, *Ardito* is no longer included in the classes intended for export. Argentina now intends to use those varieties only which are produced in the country, the sole foreign variety allowed being ***Kanred***. But if as a variety, *Ardito* is in regression, it is still very important for purposes of breeding. In fact, the best Argentine varieties *Klein 32* and *33* have *Ardito* as a parent. In Greece, PAPADAKIS made considerable use of the *Mentana* and *Ardito* varieties in his crossings with Australian varieties; mention may also be made of *Federation* × *Ardito*, which is called *G 8567* and the *Florence* × *Ardito*, known as *G 9234*. In France, the Italian *Rieti* has been much in favour as a parent plant ; for example, the *Talisman* (*Rieti* × *Gros bleu*), the *Institut agronomique* ([*Rieti* × *Epi carré*] × *Hatif inversable*), as also *Poilu de Tarn* (*Rieti* × *Parsel*). Some durum wheats also originated in the Mediterranean basin. Mention may be made of the *Pelîss Kahla*, introduced into U. S. A., and the *Medea* wheat, introduced into Argentina.

In the improvement of Argentine plants which has shown such successful results, the *Barletta* Mediterranean is in high repute for breeding purposes. Mention may also be made of the *Klein* hybrids *St. Martin* and *Klein 31*, both obtained from the crossing of *Barletta* and *Favorito*, and the *Sin Rival* and *Vencedor*. both the progeny of *Barletta* × *Universal* The hybrid *38 Ma* (obtained by BACKHOUSE) which also contains *Barletta*, is the most important variety established in Argentina.

Australia.

Among countries exporting wheat varieties, Australia is the latest and also one of the most important. The first varieties cultivated in Australia were English species, but these wheats only succeeded in zones with favourable conditions The first wheat was harvested in 1790, but little interest was taken in wheat cultivation until 1860, the period during which gold prospectors and adventurers developed this culture, by importing new varieties chiefly from France. But wheat cultivation only received its fullest impulse under the influence of William FARRER of Lambrigg (New South Wales). who in 1890, began research work in the improvement of the varieties, using foreign wheats as parents. He introduced *Red Fife* from Canada, and some varieties showing early ripening and resistance to drought from India, by crossing these two varieties, he obtained varieties such as the *Cedar*, *Comeback*, *Jonathan* and *Bobs*. In order to develop productivity, he found himself obliged to introduce into this crossing an Australian variety already acclimatized. In this way, he obtained the hybrid (*Red Fife* × *Etawah*) × *Purple Straw*, from which originated the well-known variety *Federation* and its later offspring *Major*, *Aurora*, etc. In this combination, the Russian-Canadian element supplies the good quality, the Indian, early maturity and the Australian productivity. Through the introduction of the FARRER varieties, wheat cultivation in New South Wales increased from a million acres in 1897 to 5 million in 1930. In 1925, the FARRER varieties were grown on 50 per cent. of the total area under wheat cultivation in Australia. To-day, these wheats were replaced by other improved varieties, which in New South Wales after the death of **Farrer**, are produced by the Department of Agriculture, international parent plants always being adopted. In fact, the improvement of Australian wheat is characterized by the internationality of the parents used, being derived from India, Canada, U. S. A., and Russia, and also from other countries in Asia and Europe, in Argentina and Alaska. Some varieties of hard wheats were introduced from Russia (*Arnautka* and *Kubanka*), from Algeria (*Medea*, *Mohammed ben Bahir*), from Arabia (*Hurma*, *Koolah*), and from India (*Piola Karte*, *Shet Gahu* and *Dakar*). In carrying out these crossing experiments, strains coming from very diverse climates were adopted. Parent plants originating in U. S. S. R., Poland, U. S. A., and India produced the *Abbot*, *Akubra*, *Canberra*, *Early Bird* and *Wagga* varieties. The *Joffre* variety comprises elements coming from France, the United States, Galicia and India. Furthermore, Indian germ plasm is to be found in many Australian varieties: *Castor*, *Cousin*, *Carlyle*, *Carbine*, *Merlin*, *Fortune*, *Jonathan*, etc.

Among more recent Australian varieties, the *Nabawa* and the *Ford* are worthy of note. During the course of ten years, the area under cultivation with the former variety in New South Wales has reached a million acres (1935), and also in West and South Australia *Nawaba* has become the most popular variety. Its parents are *Bunyip* and *Early Gluyas* and the latter variety may be considered as being of Egyptian origin. The *Ford* variety, which originated at Roseworthy College (South Australia), during a period of 10 years was found to have covered an area of 800,000 acres in New South Wales. This variety, through its parent *Comeback*, contains germ plasm of *Red Fife* and of some Indian varieties. The well known varieties *Warata* and *Yandilla* are also derived from foreign parents, the former descending from *Gluyas* mentioned above, the latter from *Red Fife* and *Etawah*.

Australian varieties grown abroad.

Certain Australian varieties had a considerable vogue in other countries, both as distinct varieties and as parent plants. These wheats were introduced first in the United States, where they formed the basis of the *White wheat* class The *Pacific Bluestem* (white Australian) also should be recorded, this being for some considerable time the dominant variety in Australia, where it was imported from England. It reached America in 1850, and became diffused chiefly in California, after covering over a million acres in 1919, this variety rapidly declined, and was replaced by other varieties, also of Australian origin, in particular, the *Baart* and the *Federation*.

The *Baart* variety arrived in Australia in 1880 from South Africa, this variety which is practically no longer known in Australia to-day, was imported in 1900 into U. S. A. and in 1934, covered approximately 800,000 acres. The introduction of the *Federation* variety into the United States was of still greater importance. This wheat may be considered the greatest among the many successes obtained by **Farrer**. It succeeds equally well under dry or irrigated conditions, this being probably due to its Indian strain. The variety soon came to the front among the Australian wheats, and maintained this position until 1925. When introduced into the United States, within a short period, 700,000 acres were already under cultivation. The *Hard Federation* variety obtained in Australia by improving *Federation* was also extensively grown in U. S. A. *Federation* was also successfully cultivated in other countries, especially in India (N. W. Frontier Province).

Federation is a parent of the *Canberra* variety, which was introduced into Greece at the same time as the *Mentana*, previously mentioned, and became highly popular. In 1935, these two varieties were grown on approximately 250,000 ha. in Greece, and contributed notably to an increase in the harvests, it being estimated that through the importation of the two foreign varieties, the harvest increased by 1.5 million qx. per annum. Reference should also be made to another FARRER variety, the *Bunyip* This variety includes among its antecedents, the *Improved Fife* and the *Hornblende* variety, the latter being produced by A. E. BLOUNT, one of the first American workers in hybridization. In this way, American germ plasm returned to its country of origin after having been used for breeding in Australia. The well-known varieties of FARRER, *Florence* and *Aurora*, also contain a strain of the *Fife* and *Hornblende* varieties.

Australian varieties, for example, the *Florence* are held in high esteem in Chile. This variety has also become well established in Tunis and Algiers. Australian varieties are also extensively cultivated in South Africa.

Australian varieties used for breeding abroad.

If Australia has given the world some important, well defined varieties, the varieties used for breeding have also been of signal value, the *Federation* variety being the most popular Its part in the production of *Pusa No 4* would be highly important but there is some doubt as to its share in the production of this hybrid. Mention has already been made of the utilization of this variety by PAPADAKIS in his breeding experiments in Greece. The breeding value of *Federation* is surpassed by *Florence* and by *Aurora*. The *Florence*, when crossed with *Turkey* by GAINES in 1915 in U S A, produced *Ridit*, a very promising variety, which in 1933 was estimated as covering an area of 200,000 acres. The *Ridit* variety is important on account of its resistance to bunt. In Tunis, *Florence* gave the *Pusa* × *Florence* early ripening variety, which produces a first quality wheat for export. In Greece, the *Florence* variety gave rise to the *G 9234* (PAPADAKIS) and in Algiers, the *Florence* × *Mahon* (DUCELLIER). But it is chiefly the combination of the two *Florence* × *Aurora*, a successful cross made by SCHRIBAUX, subjected to selection by BOEUF, which has provided such excellent results and given rise to the well-known variety *No. 588*, also called *Blé Cailloux*. These hybrids were subjected to further selection work in Algeria, giving the resultant varieties *8189* and *8193*, which are good quality wheats with high yields.

A very considerable exchange of wheat varieties and parent plants also took place between Australia and South Africa.

It has been possible at Nairobi (Kenya) by means of the Australian varieties, *Thew* and *Warren*, to obtain excellent varieties which in the regions of tropical

Africa prove successful at an altitude of 2,000 m. The same varieties are also used in Spain. In this country, they were crossed with the Saharan variety *Krelof*, which withstands a very high degree of heat. Some Saharan varieties were also tried in Algeria, pure lines being selected and subsequently crossed and used as parent plants. The products were later exported to Portuguese Angola and the Sudan, with successful results.

India. — After having dealt with the youngest of wheat growing countries, one of the oldest, India, will now be taken into consideration. According to VAVILOV, this country may be regarded to some degree as the first centre of origin of soft wheat. It would also appear that in India, the cultivated varieties of wheat, contrary to the usual position in other countries, were not introduced from abroad, but were developed on the spot; in fact, foreign varieties were not introduced into India until recent years. Strabo pointed out, for instance, that a cereal similar to wheat grew on the banks of the Indus. Sanscrit writers spoke of an awnless variety of wheat which they considered as indigenous. In any case, wheat cultivation in India is as old as that of any other country in the world. Imports and exports were insignificant and India is of no importance as regards the international wheat trade; for this reason, it is easy to forget that it is one of the greatest producers of wheat in the world. To-day, with 100 million qx. per annum, India takes the fourth place, after U. S. S. R., China and the United States. It was not always the case however that India did not export wheat. In 1865, wheat exports were non-existent, but during the 20 years following 1870, wheat production rapidly increased, chiefly in consequence of the development of railway routes, which gave a considerable stimulus to the export trade, although rather irregular. The arrival of Indian wheat on the world market in 1930-31 as well as the re-appearance of Russian wheat, caused a certain uneasiness. It is important to note that at that period, an endeavour was made to give the impression that Indian wheat, as also, at a later stage, Russian wheat, constituted a disturbing factor. Use was made of the philanthropic argument that this trade would deprive the native population of their best food, leaving them with cereals only of little nutritive value. Furthermore pressure exercized by the rapid increase in the population soon checked exportation after a brief period of success.

Until recently, Indian cereals were composed of a mixture of innumerable varieties. This position became entirely altered when A. and G. L. C. HOWARD of the Imperial Institute of Agricultural Research at Pusa (now established at Delhi), undertook experiments in the improvement of wheats. They also used varieties of foreign origin as parent plants. It has already been noted that the well-known *Pusa 4*, obtained by the HOWARDS, probably contains some elements of *Federation*; the latter variety, besides the Australian element which it contains, furnished also in this crossing, a Galician-Canadian element (*Red-Fife*) and brought and Indian strain (*Etawah*) back to its country of origin. From India, this new variety spread to various parts of the world. For many years, *Pusa 4* was the most popular variety in India; it has the quality of early maturity and succeeds equally well in both dry and irrigated conditions.

Improved wheat varieties are very extensively cultivated and chiefly in the most intensive wheat producing provinces, i. e., the Punjab, United Provinces, and N. W. Frontier province. These improved wheats, in 1934-35, were cultivated over an area of 6,400,000 acres, representing $^1/_6$ of the total area under wheat cultivation in India. In the United Provinces, *Pusa 4* is the predominant variety. Recently, the *Pusa 120* (*Pusa 4* × *Federation*), and *Pusa 165* (*Pusa 52* × *Federation*) have obtained a certain popularity. The Australian *Federation* element will be seen in these crossings.

Among the Indian varieties, *Pusa 4* is the most widely diffused in other countries it is widely cultivated in Queensland, but is also very extensively grown in New South Wales. It is of less importance in California and Algeria, but has been commended as suitable for South Africa, Kenya, Egypt and Japan. For breeding purposes, *Pusa 4* is the most important, and is in favour on account of its precocity and good quality. Hence it became of great value in the improvement of wheats in Algeria and Tunis. Mention may here be made of the crossings obtained by DUCELLIER, *Pusa* × *Florence* and *Pusa* × *Mahon*. Another wheat probably of Indian origin is the *Hindi*; B. G. C. BOLLAND produced the *Hindi D*, the most extensively cultivated variety in Egypt. Some *Hindi* strains were also introduced into Algiers and Tunis and were used for breeding.

Northern Europe.

As compared with Russia, the countries of the Mediterranean Basin, Australia and India, the countries of North Europe, from the point of view of production of varieties, hold a historical rather than an effective position, but mention should be made of *Squarehead*, the first variety to become widely diffused outside national frontiers.

The *Squarehead* variety is of English origin. It was cultivated in England towards 1830, but it was not till after 1870 that, through the efforts of SHIRREFF this variety became extensively cultivated and developed. In 1874, it reached Denmark, and later Germany, Sweden, Holland, Belgium and France. In all these countries it was improved through selection and contributed considerably to the increase of the wheat harvests. The best known German wheat breeders have obtained varieties of *Squarehead*; reference may be made also to the *Squarehead* of STRUBE, RIMPAU, KIRSCHE, DIPPE, and others.

In many countries, this variety is also highly valued for breeding purposes. At present, the most extensively cultivated variety in Germany is the *Carsten V*, which contains elements of *Squarehead*, this is also true for the *Hybrid* of RIMPAU, renowned for its quality, and many other varieties.

In Sweden, the well-known *Pansar* is also descended from *Squarehead*. In England, *Yeoman 11* is the progeny of *White-chaffed Browich*, a variety of the *Squarehead* type, crossed with *Red Fife*, a Galician wheat, of which mention has so frequently been made. This is the most famous of all the varieties obtained by BIFFEN, from this variety through selection, the *Ideal* was obtained in England, and the *Flèche d'Or* and the *Providence* in France. In Holland, L. BOEKEMA of Wageningen used the *Squarehead* to obtain his well-known *Wilhemina.* This variety, the most extensively grown in Holland, has also become established in other countries, and chiefly in England. It was in turn used as a parent plant in the well-known varieties obtained by STRAMPELLI in Italy, such as the *Mentana* and the *Ardito, Virgilio, Edda,* etc. In France, VILMORIN in 1880, beginning with *Squarehead,* produced the *Gross Tête* variety, then the *Massy;* the latter variety subsequently served for obtaining *Vilmorin 29, Alliés, Hybride de Way,* etc. In Austria, the *Loosdorfer Piatti* and the *Non plus ultra* wheats contain elements of *Squarehead.* In Czechoslovakia, the *Grenadier* of Svalöf, bred from the English *Squarehead,* has been successfully cultivated. The influence of *Squarehead* is also recognized in the wheat varieties of Poland, the Baltic countries and Slovenia.

Hungary. — From 1870 onwards, considerable quantities of *Squarehead* wheat were introduced into Hungary, which it was not possible to maintain the plains, though it has become established in the hills. The *Marquis* variety was also introduced, and has played an important part in the improvement of Hungarian wheats. The wheat-breeder BOROSS obtained winter wheats from *Marquis* and crossed them with indigenous varieties; in this way he produced varieties of excellent quality such as the bearded *Bancut No. 1201* which has also become well established in France.

Certain Hungarian varieties were also exported to the United States but chiefly to the neighbouring States of Hungary. Some of the best Russian varieties are derived from Hungarian wheats; thus, the *Banat* wheat produced *Ukrainka, Moscow 02411, Durable* and *Stepnyahka.* Some Hungarian wheats were formerly imported into the Ukraine, and traces still remain. Hungary, on the other hand, claims that *Red Fife* is of Hungarian origin; M. DEGEN, in any case, considers that the Galician wheat, which produced *Red Fife,* was obtained from an imported Hungarian Theiss wheat. Hungarian wheats were also of great importance in Austria and Germany, where they were utilized for improving the baking quality of the local wheats, mention may be made of the *Non plus ultra* of TSCHERMAK, the *Nordland* of KIRSCHE and the *Early Hybrid* of JANETZKI.

Centres of genes.

Reference has just been made to the Theiss wheat as possessing superior genes improving baking quality. At present the improvement of baking quality being a matter of first importance, the varieties having these genes are specially in request. As far back as 1878 and 1885, M. TREYER had prepared a map of wheats, classified according to quality. It is worth while to trace in this map the hereditary quality of the varieties in relation to the modifying influence of climatic conditions. Later M. FLAKSBERGER published a world map, showing the protein content of wheats in the different countries. In this map three well defined zones are to be seen, indicating high protein concentration; the first zone forms a long belt beginning in the Odessa region, passing through the Black Sea where it covers the Ukraine and Crimea, whence it is continued, following more or less the 50° latitude, to the Chinese frontier; the second zone lies below the first; it begins at the Caspian Sea, passes along the Russian frontier, skirting Iran, Afghanistan and India; the third zone extends from north to south crossing the Central States of North America on both sides of meridian 100. In addition, a very pronounced centre of depression is shown in the region, where the climate is affected by the sea in North Europe, which corresponds more or less to the region where the *Squarehead* variety is chiefly diffused.

Following the example of VAVILOV and his collaborators, wheat breeders are increasingly inclined to select parent plants, not so much among the varieties from countries with extensive cultivation, but rather from the original centres of diffusion.

It has been frequently observed, that in consequence of selection, previously made, as it were, unconsciously but now carried out according to a proper system, a deterioration in the genes of cultivated wheats has gradually been produced. Thus in crossing these wheats one with another, elements of equal value were simply combined and no essentially new factor resulted. The work of the wheat breeder may be compared with the operation of sieving, the breeder does not consider that the elements eliminated, which at the moment may appear to him to be useless, might later prove to be highly important and essential, when it is required to adapt the new variety to different conditions or to use it as a parent plant in a different environment. It may naturally be expected that the falling off in genes would be a serious matter in countries having no long-established and native varieties, where wheat growing as a whole is based on a certain, often restricted, number of imported varieties only. The resulting homogeneity which in certain aspects may be considered to be advantageous, becomes detrimental when local elementes only are used for the improvement of the varieties. For this reason, there is now an increasing tendency to adopt wheats rich in genes for breeding, that is to say, wheats which as regards type and ecological requirements differ from each other. In this respect, the example of such fruit selectionists as MITSCHURIN and BURBANK, may be followed; they obtained their most successful results by combining varieties which showed marked differences from a geographical, morphological and ecological point of view. Consequently to-day, parent plants are sought by preference in the centres of genes. Expeditions have been organized to regions as yet but little known in order to collect the basic elements for bredibg. There may be quoted in this connection the example of the improvements effected in potato varieties, based on the wild varieties in South America, which different expeditions had brought back to the home countries. As regards wheat, the Russians have organized expeditions to many countries, and have obtained the largest existing collection of different forms, which are maintained for improving varieties. A German expedition was also organized in 1935, for collecting the different forms of soft wheat in the world centre of genes. The U. S. A. Department of Agriculture over a long period of years has obtained over 8,000 forms of foreign wheat, and 5,000 samples are now being cultivated. Consequently, a very wide basis for breeding work has been established, and as experience has shown, it is necessary that this basis should be as wide as possible. The successful results obtained in the improvement of wheat resistance to disease is due to this system. The crossing of primitive varieties has in practice been largely adopted in Russia; at the Odessa Institute of Genetics and Plant Selection, under the direction of LYSSENKO, full use has been made of the number of varieties cultivated near Leningrad. At the Djetskoïe-Siëlo Station, pure lines of Indian and Asia Minor wheats are propagated. Based on the results of the work of JAKUBZINER a high value is attached to the original varieties of Syria, Palestine and Transjordania, where types of soft wheats are found in which resistance to drought is a conspicuous characteristic.

In this connexion, the early Indian varieties should also be recorded, the important part played by these varieties in the composition of present day varieties in the different countries has been very clearly manifested. To-day Chinese varieties are also used freely in breeding work, especially at the Halle Centre of Plant Improvement, in Germany.

Causes of the displacement of varieties.

In considering the causes of the displacement of varieties, it will be seen that these differ for wild and for cultivated plants with a plant grown from the earliest fimes such as wheat, man plays an important part. The struggle for existence has not been eliminated by man, but has become modified. When wheats rich in forms were still sown, the struggle for existence exercised a selective action consequently, some forms and varieties, introduced into regions not possessing suitable conditions, disappeared of their own accord. Thus nature corrected the errors of man But when phenotypically, or later, genotypically pure forms were employed, this natural selective action gradually decreased, and the selection of varieties now depends on man alone.

In the first place, the new varieties are propagated by man, when he is convinced that they are superior to the early varieties. But there are other factors involved in this connexion, for example, political frontiers have exerted a strong influence, constituting a certain barrier preventing expansion into foreign lands; on the other hand, these barriers, in correspondence with the enhanced exchange of goods internally, have encouraged the diffusion of varieties in the interior. Certain varieties were perhaps excessively favoured as regards natural conditions Commerce also has a certain influence in the extension of varieties. A very varied history brings about a great wealth of forms in a country. With regard, for example, to the composition of the wheat forms of the Mediterranean islands, the imprint of their various foreign rulers may be recognized, and also the influence of their commercial relations. For example, a preponderance of soft varieties in Corsica and of hard wheats in Sardinia is to be observed. The hard wheats of Sardinia resemble those of Spain, the varieties of Sicily, those of Italy, Malta possesses some forms differing considerably from those of Sicily, the Cyprus wheats are similar to those of Egypt rather than to those of Syria and Palestine.

Poor harvests are often the cause of an involuntary importation movement. In 1863, the Hungarian Government imported, in consequence of drought, 50,000 florins worth of wheat seed from Poland and Galicia.

There are also quite recent examples of the effects of the modifications of frontiers: the Banat, which belonged to Hungary previous to the world war, and to-day is part of Rumania, now easily supplies seed wheat to pre-war Rumania.

The result naturally differs considerably if a variety reaches a country where wheat has not yet been cultivated, or where it is already cultivated. In the former case, even a variety not very suitable for local conditions, has some probability of becoming established, while in the latter, success depends on the possibility that the new variety will prove successful in the struggle for existence, either through the aid of natural elements or of man himself. It should not be considered surprising that in a country with a long established cultivation such as India, foreign varieties have not been able to succeed, even though many trials have been made and on several occasions. On the other hand, the Australian continent has been easily conquered, it may be said, through new imported varieties, which in their turn were superseded by new varieties produced in the country, as soon as the latter entered into competition with them. Australia offers an excellent example of rapid change in varieties; in New South Wales, from 1925 to 1935, new varieties such as the *Nabawa* and the *Ford* passed from 0 to 1 million and 760,000 acres respectively, while during the same period, the famous *Federation* decreased from 850,000 acres to 25,000 and *Canberra* from 475,000 acres to 20,000. This variation is naturally due solely to the view adopted by man, when considering the value of these varieties.

Conclusion.

In summarizing, the following facts may be regarded as established:—

Originally, the wheat stocks composed of numerous different forms chiefly became diffused over new regions. These varieties, which naturally should not be called by this name in the modern sense of the word, have been able to adapt themselves, mainly owing to their polymorphism, they have experienced the influence of natural selection and become varieties within the country, often differing considerably from the original variety. Their success was all the easier in that competition as the varieties already in existence were weak.

As agriculture progressed, increasingly pure varieties were introduced, which sometimes gave good results, but were superseded as soon as, in their new home, selection work was undertaken. The new selected varieties tended to displace the original varieties. The more advanced selection became, the more the varieties obtained were specialized and consequently the possibility of their adaptation to new conditions decreased. If the conditions prevailing in the new home correspond to those of the country of origin, the chances of success are greater than in the contrary case. But success is not certain even here, even if conditions correspond exactly, and it is only experience that can give definite information on this subject. On the other hand, importation may prove successful, even if the ecological conditions differ and would appear to indicate the contrary.

A prolonged " inbreeding ", such as was formerly practised with parents from the same region, leads to a want of elasticity in the varieties produced, to an exaggerated specialization and at the same time renders the new varieties unsuitable for diffusion outside the regions of the restricted area where they were bred. To remedy this state of affairs, there is now a tendency to take parent plants from different regions and to select them from the various ecological types; this tendency has recently become intensified and has led to taking at least one of the parents, not from a region of intensive cultivation with a falling off in genes, but from a centre of origin or at least from a country of primary diffusion. In consequence of the synthesis of the new varieties obtained from parents of different countries and with different climatic conditions, the resultant varieties have greater adaptability; present day varieties as has been seen, are composed in a manner quite international.

Considerable changes have taken place as regards the origin of new varities and parent plants. The newly discovered regions of America and Australia, suitable for wheat cultivation, were first stocked with varieties brought over by conquering races and colonizers; a systematic and properly thought out importation plan was only established later, varieties being taken from the Mediterranean countries and especially from Russia. At a still later stage, the New World gained preference over the Old as regards the production of new varieties; Canada and Australia especially came to the front in production of this order. In quite recent times, attention has again been devoted to the original centres. The regions which furnish parent plants are Central Asia, Iran and Asia Minor. Previously, India, a country distinguished by its very early wheat cultivation, had given parent plants of the highest value, Northern India forming part of the original centre of soft wheat, maintains and has still further enhanced its importance as a supplier of wheats for breeding.

If all the different wheat varieties of the world are taken into consideration, it will be seen that some superior germinative lines have become established independently of political frontiers, and to a certain degree even of climatic zones and conditions of cultivation. Chief among these varieties is *Red Fife* of Galicia and its derivatives *Marquis* of Canada, *Yeoman* of England, and *Federation* of Australia, varieties which have all obtained a striking success, and together cover a very extensive area, which cannot, however, be exactly determined, as the different countries do not supply precise information on the subject. The importance of *Red Fife* becomes still more evident, when its derivatives and more distant progeny are considered including: *Onas*, *Bunyip*, *Eden*, *Comeback*, *Hope*, *Tenmarq*, *Reliance* and *Thatcher* in the United States: *Pusa 4*, *Pusa 120* and *Pusa 165* in India; *Pusa × Florence*, *Blé Cailloux* in French North Africa; *Sully*, *Montfort*, *Aurèle Gaby* and *Providence* in France; *Bankut 1201* in Hungary, and a multitude of others. It may be said that the *Red Fife* strain now covers a surface which is world-wide.

Two other very important strains are the *Hard Red Calcutta*, from which *Marquis* is derived, and the *Etawah* from which *Yandilla* and *Federation* originate. Among other leading varieties, the Japanese *Akagomughi* should be noted, a wheat which has acquired its renown through crossings with other types, from which were obtained the famous STRAMPELLI varieties. Great importance is also attached to the English *Squarehead* variety.

If it be asked why these parent plants were preferred, it is seen that, with the exception of *Squarehead*, which owes its renown to its productivity, this preference is due to their early maturity. This quality is of prime importance when the vegetation period is of short duration, and when the rainfall is insufficient as also when it is necessary that the wheat should develop early in order that rust attacks may be avoided.

This international composition of present day varieties, by establishing them on a very wide basis, provides them with that force which is their characteristic feature. It is to be hoped that the free exchange of varieties and parent plants which contributes so largely to the progress of agriculture, will not be hindered, but, that on the contrary, international cooperation will be encouraged, a cooperation which has already given excellent results in breeding for rust resistance. Such cooperation could be still further developed, if breeders prove successful in obtaining international protection for their products, as has been their desire for many years past.

N. v. GESCHER.

Principal publications consulted:

BOERGER A , Die Mehlqualitat der Handelstypen von La Plata-Weizen unter zuchterischen Gesichtspunkten — *Der Zuchter*, Berlin 1935, no 9, pp 233-244
BOERGER A , *Observaciones sobre agricultura* — Montevideo, Imprenta nacional, 1928, pp 580.
BŒUF F , Amélioration de la production des céréales en Tunisie — *Revue internationale d'agriculture*, Rome, 1935, no 7, pp 321-340
CLARK, J. Allen, Improvement in wheat — *Yearbook of agriculture* 1936 U S Department of Agriculture, Washington, pp 207-302.
CLARK J. Allen & BAYLES B B , Classification of wheat varieties grown in the United States — U S Department of Agriculture, Washington 1935, Technical Bulletin No 459, pp. 164
CLARK J. Allen & QUISEMBERRY K S , Distribution of the varieties and classes of wheat in the United States in 1929 — U S Department of Agriculture, Washington 1933, Circular no 283, pp 76
CLOS E , Ensayo de clasificación de los trigos de « pedigree » cultivados en la Argentina — Buenos Aires 1934, Almanaque del Ministerio de Agricultura de la Nación, pp 321-330
FLAKSBERGER C A , *Flora of cultivated plants* (*cereals, wheat*) — Moscow-Leningrad 1935, vol 1, State agric. publishing company, pp 434.
v GESCHER N , L'amélioration des céréales dans les pays du bassin méditerranéen 2) Algérie 1935
HOWARD A & HOWARD G , *Wheat in India* — Thacker, Spink & Co Calcutta 1910, pp. 288
JAKUBZINER M M , Nouvelles variétés de blé provenant de ressources mondiales déjà existantes — *Selection et production de semences*, Sjel'skosghis, Moscou 1936, No 6, pp 37-44
JONARD P , *Essai de classification des blés tendres cultivés en France.* — Paris 1936, Imprimerie nationale, pp 264.
MCMILLAN J. R A , Varieties of wheat in Australia — Melbourne 1933, Council for Scientific and Industrial Research, Bulletin no 72, pag 28
PERCIVAL J , Wheat in Great Britain. — Leighton, Shinfield Reading 1934, pp. 125.
SCHREIBER L., Wheats of the islands of the Mediterranean — *Bulletin of applied botany, of genetics and plant-breeding*, Lenigrad 1934, Ser. V, no 2, pp 41-232.
VAVILOV N. J., A contribution to the classification of soft wheats — *Bulletin of applied botany and plant-breeding* Petrograd 1922-1923 13th volume, pp. 144-257.
VAVILOV N. J., *Theoretical bases of plant breeding*, vol. 1. — State agricultural publishing house, Moscow-Leningrad 1935, pp 1043.

RURAL ELECTRIFICATION IN THE DIFFERENT COUNTRIES

The development of rural electrification in the different countries has generally been in direct proportion to the density of the respective populations. In densely populated areas, as in the environs of large cities, electrification has made rapid headway, while in regions with a scattered population, progress was slow as consumers were not in a position to pay for the costly establishment of electric plants.

Any marked increase in population results in the establishment of a scheme of electrification, continually undergoing development and independent of State assistance. Electrification plants have also made their appearance outside densely populated areas, as in recent years, many States have decided systematically to extend rural electrification and to render such development possible, through their intervention, in regions where natural conditions were adverse to progress on these lines

The interest in rural electrification shown by public bodies is largely dependent on the importance they attach to their social policy programme. Due to the various uses in the house and on the farm, as well as to the simplicity, comfort and cleanliness provided by electrical equipment, and the intellectual activities it brings in its train, which must be taken into account, life in the country is now equipped with possibilities of development which may act as a counterpoise to the depopulation of the countryside.

In the following chapters, a brief survey will be given of the development of rural electrification in the different countries.

Austria. — The development of the production of electricity in Austria is closely connected with the problem of rural electrification Formerly rural electrification was obtained by two methods, according as the different areas came within the distribution radius of small independent stations or were supplied with electricity by large power companies. In the latter case, the method which gives a primary importance to the distribution of electricity to the industries and towns employing the current, results in the electrification first of the immediate neighbourhood of the rural lines and subsequently of that of the more remote districts. The most extensive development of electrification took place immediately following the war; it was a result both of the shortage of petrol and fuels, and of the easy circumstances in which the peasants found themselves, at this period. In 1935, this development in many cases attained 95 per cent of the properties covered by a distribution area. The specific consumption of electric current per farm holding amounted to 134-420 Kwh., for every hectare of cultivated land, 5 to 43.5 Kwh. and per head, 11.5 to 75 Kwh.

Of the total electricity requirements 30 to 50 per cent. is absorbed by light consumption. The electricity capacity of each farm amounts to 0.45 Kw.-1.28 Kw. not including that of the electric threshing machines, which are equipped with motors up to 7 Kw.

The most extensive consumption of electricity is due to the use of mobile motors of 3 to 5 HP, which every year are increasingly employed as motor power for the different installations and farm machines. Electric threshers are a very valuable aid to threshers who travel from farm to farm. As in Germany, efforts are also being made in Austria to extend the uses of electricity in connection with agriculture, for example, in flour mills, saw-mills, cooperative dairies, rural tile-factories, etc.

The distribution of electric current in the purely agricultural areas is partly obtained through secondary cooperative and communal systems and partly from electric lines belonging to the company furnishing the current. The high tension lines are chiefly in the possession of large companies.

As the distribution costs in the rural districts are considerably higher than in the towns, the country consumer is required to contribute from 65 to 80 per cent. of the costs incurred in the construction of the installations. There is practically no difference in the tariff rates as compared with the towns.

No financial assistance for electrification works has as yet been officially granted.

Belgium. — In Belgium, since 1890, privately owned companies for the distribution of electricity have been concerned in the provision of rural electrification and in 1914, these companies supplied electric power to 410 communes. At that time, the distribution systems only extended to inhabited centres and to agricultural districts in the vicinity of important towns. After the world war, the electric power companies grew very active, and were supported in some agricultural regions by the provincial authorities.

The position of electrification in Belgium in 1936.

Electrification system	Number of communes	Population supplied with electricity	Average population per commune
City supply controlled by privately-owned companies .	90	1,750,000	19,400
Rural supply controlled by privately owned companies	1,904	4,150,000	2,180
City supply under official administration	34	1,306,000	38,400
Rural supply operated by a communal association .	164	234,000	1,420
Rural supply under official administration	445	820.000	1.840
Rural distribution supplied by a high tension line installed by the provincial authorities. (These systems are included in the lines of the two preceding categories	255	—	—

At the beginning of 1936, there were only 35 communes in Belgium with an average population of 400, which were not supplied with electric power and practically all the farms are supplied with electric light. On the small farms, electricity is used mainly for operating cream-separators, churns, washing and other small machines; on the large farms, it supplies motor power for fodder preparing machines and dairy apparatus.

The present position of electrification in Belgium may be seen from the previous table: the figures given afford a means of estimating the relative importance attained by the private companies and public authorities in carrying out the work, to-day very complete, of the rural electrification of Belgian lands, and it has been possible to accomplish this end without financial assistance by the Government.

Czechoslovakia. — In 1918, only 11 per cent. of the communes in Czechoslovakia were supplied with electric current, representing 34 per cent. of the population. Towards the end of 1935, 9,070 communes were provided with electricity, which represents 58 per cent. of the total number, 15,682, and the percentage of consumers was approximately 80 per cent. of the total population. The consumption per head amounted to approximately 200 Kwh.

Rural electrification in Czechoslovakia has been subsidized by the Government since 1924. Since 1927, special laws have been passed prescribing a proper system of electrification, and establishing the value of the subsidies to be granted to the communes and power stations.

Denmark. — Since the initiation of the use of electricity, this source of energy has become widely diffused in Danish agriculture. In many areas in early years, windmills for the production of electric current were established by preference, but now agriculture, so far as possible, is supplied with current by electricity companies. There are now 437 public electric plants with an output of approximately 530,000 HP; this number includes 347 purely rural power stations, supplying direct current in the country districts. The high tension line has a length of 10,800 km. and the low, tension line serves an area of 24,000 km^2.

It may be stated that approximately 50 per cent. of all farm dwellings (corresponding to about 60 per cent. of the total area under cultivation) enjoy the benefits of electricity. The average consumption of current per annum and per ha., for all farms amounts to 17 Kwh. per ha. The average-sized farms not possessing electric mills consume approximately 12 Kwh. per ha. Medium-sized farms using an electric thresher, chaff cutters, mill, crushing mill, etc. show a consumption of 53 Kwh. per ha. The electric mills are the chief cause of an increased consumption of current.

In 1934, the consumption of electric current in the country districts amounted to 35.5 million Kwh. for lighting purposes, and 69.1 million Kwh. for motor power.

The financing of rural electrification in Denmark was effected on a cooperative basis by means of loans, a system similar to that adopted for the electrification of the towns. The success obtained through this system may be attributed to the extensive use of motor power and the extensive employment of machinery; compared with other machines driven by motor power, the electric motor has many advantages. Electric motors are used chiefly for threshers, chaff cutters and water pumps.

The motors for threshers are usually of 5 to 7.5 HP, the motors for hay-choppers and pumps on medium sized farms, 2HP.

In general, the working and depreciation cost of the electric motor are less than for a combustion motor; the use of tractors and locomotives is advantageous only in the case of large scale farms. Tariff rates tend to become standardized based on a rate to which should be added a rate for the current consumption. The charge for lighting purposes usually varies between 40 and 50 öre per Kwh.; the tariff for power, between 20 and 25 öre per Kwh.

France. — Rural electrification in France was initiated as from 1919; the power stations then in operation only supplied approximately 7,500 communes. Since then it has been possible to organize without State assistance a further distribution of power to 4,700 communes. Consequently the total number of communes (for the greater part, of an urban character) which have been able to obtain a supply of electricity amounts to approximately 12,200. The total population affected is 29.6 millions.

Electrification however is far from being complete for all these communes. Owing to the high cost of the establishment of electric plant and the low output of the rural lines, electric power only can be supplied in exceptional cases, through the efforts of industrial companies, hence a general collaboration, both technical and financial, between the State, the Departments, the communes, future consumers, and electrical industries was bound to develop. State aid became necessary in 7,000 out of the 12,200 communes referred to, for the purpose of extending electric services to the rural part of their territory, and there were thus 3.1 million persons to be supplied with electricity.

The remaining communes all requested the aid of the Ministry of Agriculture for the complete electrification of their district, and the population concerned represented a total of 12.2 million inhabitants.

Under the twofold aspect just considered, rural electrification with State assistance was extended to approximately 15.3 million persons in France. In 1936, only 2,239 communes (out of a total of 38,000) remained without an electricity supply, the total number of inhabitants requiring electric current in the communes totally (755,000) and partially unprovided with electricity, amounted to less than 4 million.

The total costs incurred to-date exceed 7 milliard francs, to which the State contributed 3 milliards in subsidies and 560 millions in loans at a reduced rate of interest.

As the rural population in France represents 46-47 per cent. of the total population, it may be concluded that 80 per cent. of the agricultural population is at present supplied with electric current.

French engineers have paid much attention to the improvement of electrical farm equipment. Great progress has been made in the use of electricity for irrigation and drainage work, as well as for ploughing. France is one of the two countries where electric ploughing has been extensively adopted in practice. A large number of associations possess electrical ploughing machines, with power varying between 35 and 200 HP. This machinery is working on the farms at arranged rates.

The diffusion of electrical power throughout the rural districts of France has brought about a revival of home crafts for different industries which lend themselves to decentralization.

The measures recently adopted for simplifying tariffs aims at abolishing the multiple meters and minimum consumption rates, which were not popular with the rural customers. Hence in some regions, and beginning in 1934, gradually diminishing tariffs were applied, calculated by one meter only for lighting, domestic uses, and small agricultural motor power. The average annual consumption per head in electric power may be estimated at 31 Kwh.

Germany. — In the adoption of measures for the rehabilitation of agriculture in Germany, electrotechnique and electric economy play an important part; as a result of the efforts made in recent years, considerable progress has been attained in electrification and 80 % of the farms are supplied with electricity.

The use of the electric motor, especially on farms of 20-100 ha., has gradually extended on lines parallel to the development of electric lighting, though saturation point is as yet far from being attained. Electro-thermic apparatus is also being increasingly employed, and up to the present, 25,000 electric kitchen ranges and approximately 5,000 drying-stoves for cattle fodder have been established on German farms.

The reason for this development is due to the conspicuous benefits deriving from the application of electricity to farm work, and also to the scanty use made of the rural electric systems which has compelled the electric power companies to provide facilities for widely differing uses. These companies have paid special attention to the industrialized agricultural districts with their milling plant, tile-factories, and brick-kilns, dairies and saw-mills; in consequence, the power companies have made every endeavour to obtain the greatest possible utilization of their plant.

The experiments made in the hope of introducing the practice of electric ploughing on a large scale, have, up to the present, been unsuccessful, in six cases only machines of this type are now in operation in Germany.

The number of rural consumers of electric power exceeds 3 million. The annual consumption in Kwh may be estimated at approximately 150 for a small farm, while for large farms, this figure increases to 3,000 and over. Taking the average between small and large farms, an annual consumption of 300 Kwh per farm may be reckoned, corresponding to the utilization of approximately 30 Kwh per ha of cultivated land. The total annual consumption of electric power in agriculture is considered to be 700 million Kwh, which is equivalent to 6 per cent. of the entire amount of electricity used in Germany.

The production of electricity in Germany is usually in the hands of large central organizations, which distribute the high tension current over an extensive area; these centres are entirely controlled by enterprises financed by public funds, private capital being represented only to a limited extent. The participation of public authorities indicates that the State is greatly interested in the question of electrification. In special cases, State subsidies guarantee the execution of electrification schemes.

There is a pronounced tendency towards the stabilization of distribution charges, so far at any rate as regards scale rates. The adoption of a basic tariff is gradually being established, consisting in a fixed rate calculated according to the area of land under cultivation (in certain instances, according to the power required or installed) and an additional reduced rate dependent on the number of Kwh consumed. In principle, the agricultural installations obtain electric current under the same conditions as the city services. The tariff now in force acts as an incentive to an increased consumption, which is to the advantage of both consumer and producer.

Great Britain. — Before and directly after the war, the supply of electricity was limited to large cities and to their [immediate neighbourhood. Some country towns also enjoyed the advantages of electricity, which at that period, was generated by very small secondary power stations.

A law of 1926 brought about the establishment of a uniform system for the whole country. The different electric power companies were amalgamated and at the same time, those showing no working profit were eliminated. The districts where in general no electricity companies were in operation, were connected with the electric current though the establishment of inter-communal lines.

As a result of this amalgamation and grouping, electrification as a whole, made very marked progress, from which agriculture has obtained special benefit.

The lines which connect the different generating centres, known as gridlines as well as the distribution lines operate with a tension of 138,0000 volts and 66,000 volts. The tension at the place of consumption is from 400 to 280 volts.

During 1935, the electric line supplying the rural districts of Great Britain attained a length of 41,870 km. of which 18,650 km. are high tension and 23,220 km. low tension lines.

The supply of electricity in the agricultural districts is carried out in the same manner as in the towns. While in 1925, 200 farmers enjoyed the advantages of electricity in their homes, in 1927, this figure increased to 700; in 1930, there were already 56 rural electric power stations which supplied current to 2,000 or 3,000 consumers. In 1936, the number of rural consumers had increased to 28,000, and undoubtedly, further progress will shortly be obtained.

The advantages obtained by English farmers by wooking with electric motors, are mainly due to the fact that electric motors require considerably less attention than combustion motors and are easier to use and there is practically no danger of fire. In cold weather freezing does not take place and the motors are always in good working order. In the dairy, owing to cleanliness in practical working and the absence of objectionable odours, electric motors are preferred to all other types.

Hungary. — Rural electrification in Hungary was started in 1920, but the intensive development which began at this period was checked by the depression during the years following 1930.

Electricity is generally supplied by transmission lines connected with mine power plants. The power at present furnished to rural consumers is not known; reports on the rate of increase and the development of power consumption are delayed owing to the character of agriculture in Hungary, a grain producing country, and to the crisis in recent years. The electricity consumed in agricultue may be estimated at 26 million Kwh. per annum, that is 6.5 Kwh. per head per annum. The electrification of rural areas is obtained partly through the direct action of the State and partly by State loans. Privately owned companies supply 77 per cent. of the rural population with electricity, State owned companies, 21 per cent. and cooperative societies, 2 per cent. The greater part of the electricity consumed in agriculture is used by the motors working the threshers, crushers and grinders and an increased consumption may be expected in this branch. With rates from 0.18 to 0.25 pengö, electric motors are economical in use.

India. — The question of rural electrification in India scarcely exists. In recent years, along the banks of the Ganges, a system of electric power plants has been established, utilizing the current chiefly for irrigation work, and also for lighting purposes in the surrounding districts, where it is employed for the machinery in local industry. An important hydro-electric establishment is being constructed in the Punjab, which, when completed, will be able to distribute current for both agricultural and industrial uses.

Italy. — In Italy, a large supply of electric power is available for agriculture. Besides lighting, four chief uses of electricity may be noted· (1) for irrigation works, (2) in drainage operations; (3) in farm work; (4) for ploughing the soil It appears that by far the most important form of utilization is for irrigation and drainage works. Of a total consumption, which for 1930, was estimated at 110 million Kwh , 35 3 million are attributed to irrigation and 23 4 million to drainage; the amount used in farm work (including dairies) may be rated at 14 4 million Kwh while only 1.5 million Kwh are required for electric ploughing.

For irrigation and drainage operations, night current which is supplied at a lower rate, is mainly used. For land improvement work, the annual consumption of current is considered to be from 40 to 100 Kwh per ha Electricity is regarded both for irrigation and land improvement work as a preponderant source of energy. The number of electric irrigation plants gives a total of approximately 15,700. Electricity has not proved equally successful in other branches of agriculture. For farm operations and also in the dairy generally, electricity is so far rarely used, though considerable possibilities of development in this field are evident.

Italian scientific workers have studied in detail the question of electric ploughing and have also carried out original experiments Beginning with heavy ploughs of 100 HP, which are valuable for very deep ploughing only, an attempt was made, and not unsuccessfully, to construct lighter ploughs between 5 and 10 HP; these studies however are still at the experimental stage, though they promise well. Electric ploughing of the soil, even in Italy has not proved particularly successful and only approximately 50 electric plants are in operation.

The Netherlands. — The agricultural districts of the Netherlands are provided with electricity by the provincial electricity companies, except the areas in the province of South Holland, where electrification is obtained through district companies.

In the electrification of the country, the electricity supply companies do not receive any financial assistance from the State Treasury, following the principle that the electrification of each district should be regulated according to its economic position In case of doubt, consumers are requested to guarantee the costs. If this guarantee does not suffice, the losses occuring during the first years may be covered by a reserve fund in which part of the annual profits of the provincial company are deposited. In consequence of these measures, practically the entire population of the Netherlands (98 per cent) is supplied with low tension lines.

The rates charged are the simple Kwh rate (for lighting only), and the double tariff (for different uses). On the other hand in recent years, the tariff at a fixed rate is being increasingly adopted, even though the determination of a suitable basis for the fixed amount is rather difficult

There is no national organization for rural electrification in the Netherlands At the same time, the measures relative to electrification are the same for all provinces, as all these regulations comply with the stipulations regarding State grants

The rural population does not as yet use electricity very extensively Although there are some exceptions, such as dairies, poultry farms, etc., it will be necessary to carry out an extensive propaganda campaign in order to convince the rural population of the great advantages of electricity in both farm work and domestic lighting

New Zealand. — The surface area of New Zealand amounts approximately to 103,000 square miles, of which in 1935, 21,180 sq. miles were supplied with electricity, that is 20 per cent. of the area of the Dominion. The territories not possessing electricity are for the most part mountainous or thinly populated and 93 per cent. of the total population is provided with electric power.

In New Zealand, 98.4 per cent. of the electricity is generated by water power and 1.6 per cent. by other means. The most important hydraulic installation is the Waitaki Hydro-Electric Plant, recently established; on attaining its full generating power, this plant will be able to produce 23,000 HP.

The use of electricity in the dairy is very widespread. In 1931, 22,547 electric milking machines were already in operation, thus allowing the simultaneous milking of 79,437 cows. The use of electric water heaters, cookers, etc. is continually increasing. Ploughing with electrical machines is also regarded very favourably.

Puerto Rico. — Puerto Rico, an island in the West Indies, lies in the path of the moisture-laden trade winds. Frequent rains and the mountainous topography of the island constitute an abundant source of hydraulic power.

After four centuries of Spanish rule, the island was ceded to the United States in 1898. Present requirements and the influence of American progress have accelerated development to the stage where electricity, of which the use is rapidly increasing, has become a necessity.

As the island does not produce any mineral fuel, water power furnishes the most economical source of electric power. Until 1915, electricity was supplied by private companies. The construction by the Government of a hydroelectric works station in connexion with a government irrigation scheme for the dry coastal areas of the island, resulted in the intervention of the Government both for the production and distribution of electricity in an area, which no private enterprise had attempted to supply The Government has since increased its generating and distributing facilities to meet the demand.

The low rates and the well-organized service explain the general use of electricity, the system of distribution has been extended to cover the area of the island from the south-east point to the north and west coasts, where a supply of electricity was entirely lacking.

The rates charged by the Government are identical for the same class of consumers in town and country districts. Residential and commercial rates progressively diminish and begin at a rate of 8 cents per Kwh. For a monthly consumption of over 200 Kwh., the charge amounts to 1 ½ cents per Kwh., and above 700 Kwh., 1 cent per Kwh. Agricultural and industrial rates average 1.8 cents per Kwh and for a consumption exceeding 300 Kwh. per month, the tariff is 1 cent per Kwh.

The Government has devoted its attention principally to the electrification of the rural districts. Towards the end of 1935, the system of distribution was not sufficient to provide for all the areas included in the zone of operation. During 1936, the field of rural electrification was considerably expanded with the assistance of the Puerto Rico Reconstruction Administration, which is a federal organization, and the number of rural consumers is rapidly growing.

The electrical service, established by the Government within its zone of operation, has acted as a stimulus to the use of electricity throughout the island, and consequently, privately owned power companies also benefitted by a very considerable increase in consumption within their area.

Sweden. — Rural electrification in Sweden began on an extensive scale during the period 1917-19, rapid progress being due to the shortage of petrol. Electrification rapidly extended in the following years, because of the economically favourable position of agriculture. In spite of the severe crisis of 1920, the present economic position of the rural power stations is excellent Rural electrification at present covers approximately 65 per cent. of the total area under cultivation in Sweden, or 75 to 80 per cent. of the area, which according to the authorities could be advantageously supplied with electricity.

The distribution of electric power in agricultural areas, is partly carried out by the ordinary power stations, and partly, by cooperative associations of consumers, the latter system being the more common. The cooperative movement has been working in Sweden for a very considerable time. It has contributed very effectively to the encouragement and protection of the common interests of the farmers. In rural electrification, successful results have been generally obtained through cooperation.

Apart from the production and distribution of electricity by the State, rural electrification has been realized without material assistance from the government and other public bodies. On the other hand the State facilitated the financing of small power stations by establishing loan funds. The State has also given assistance to advisory work in rural regions.

The electrification carried out by the Royal Water Power Service, on a uniform basis, through the agency of cooperative consumers associations, covers approximately one third of the area under cultivation in Sweden. In the organization of cooperative associations, the Royal Water Power Service has given gratuitous assistance by drafting regulations, planning local distribution lines, accountancy methods budgets, tariffs, etc.

In the first stages of rural electrification, the Administration introduced special wholesale rates for the electricity sold to the rural power stations. Subsequently, these rates, as adapted to the requirements of agriculture, were accepted by the associations supplied by the Administration as well as by other companies. The standardization of rural rates encouraged a more extensive use of electricity in agriculture, not only for lighting purpose but also for motive power and heating apparatus. A research institute subsidised by the State, devotes its attention to the question of new and improved uses of electricity in agriculture.

Rural electrification in Sweden is steadily and rapidly improving and is considered to be a matter of high economic and social importance.

Switzerland. — Rural electrification in Switzerland is closely connected with the general electrification of the country and cannot be considered separately. Hence it would be difficult to obtain statistical data on the consumption of electricity with reference to rural economy, and to determine therefrom the specific consumption for the whole country.

The development of rural electrification is characterized by two essential factors· its beginnings and its relatively advanced progress at the time of small, local power stations, that is to say, when the system of high tension lines was not yet in operation, and having regard to political administration of Switzerland which is a confederation of 22 sovereign cantons. In these conditions, the production and distribution of electricity are naturally decentralized and have developed according to the nature and political conditions of the country.

In the matter of distribution, rural electrification is very advanced as practically the entire population, with few exceptions only, is supplied with electric current. The farmers have not however, taken full advantage of electricity, and the modernization of dairy and cheese industries by this means has made relatively little progress.

The power companies supply current at reasonable rates for all the various uses of electricity. These charges have decreased on an average, approximately 20 per cent. as compared with pre-war rates.

United States of America. — The first important advance obtained in rural electrification in U. S. A. dates back to 1920. In 1921, the National Electric Light Association organized a Farm Lines Committee, which was subsequently known as the Rural Electric Service Committee, for the purpose of extending and explaining the benefits of electrification in the country districts. Specialists having a detailed knowledge of both electrotechnical and agricultural problems were appointed, and contributed considerably to the successful results obtained. Up to 1935, 12.5 per cent. of all the U. S. A. farms were supplied with electricity, a high percentage, taking into consideration, the scattered position and size of the farms. Undoubtedly, this percentage must have exhausted the possibilities of economic utilization; considered however as an absolute factor, this percentage is low. It does not divide satisfactorily the supply of current as between town and country in due proportions and this gives rise to considerable difficulties in the economic expansion of many agricultural areas; trade, small businesses, and many home industries, which might be developed on the basis of local products, have for this reason inevitably gravitated to the towns.

Taking these difficulties into consideration the U. S. A. Government decided to extend, the intercommunal lines to the wideet possible limits, through State funds and 100 million dollars have meanwhile been voted for investment in loans at low interest rates for the extension of inter-communal electrification.

The following table shows the position of rural electrification up to 1935:—

31 December	Number of farms	Farms connected with to a power system	
		Number	Percentage
1923		177,561	2.8
1924		204,780	3.2
1925	2,371,640	246,150	3.9
1926		300,125	4.9
1927		393,221	6.2
1928		506,242	8.0
1929		576,160	9.2
1930	6,288,648	649,919	10.4
1931		698,786	11.1
1932		709,449	11.3
1933		713,558	11.4
1934		743,954	11.8
1935		186,705	12.5

The consumption of current in 1935 in the States east of meridian 100 amounted to approximately 870 Kwh. per farm, while in the States west of meridian 100 this consumption was about 5,670 Kwh. This meant a wide difference between the western and eastern States in respect of electric current was accounted for by the use of electricity in the irrigation of fruit and vegetable farms in the west. Of all the States in America, California, as regards agriculture, uses the most electricity (60 per cent. of the farms employ electric current) and shows a maximum average consumption per annunm of approximately

14.500 Kwh. The average given for the Western States is increased by the different dairies and poultry farms, which consume a considerable amount of current.

For the great part of American agriculture – approximately 84 per cent. of the total which is provided with power – electrification would only be of small practical value, as it is only utilized for lighting and for pumping drinking water, uses which do not necessitate a kigher current than that required for domestic consumption in the towns, where the density of the population inevitably results in a greater consumption. Consequently, for the majority of American farms, the use of electricity may be considered as a luxury.

The extension of rural electrification is only of economic advantage:—

(1) on farms not as yet supplied with electricity and situated in the proximity of electric lines;

(2) on dairies, poultry farms, fruit and vegetable farms so situated that they receive electric current at prices comparing favourably with other sources of power.

(3) in areas with a relatively high number of farms and dwelling houses.

(4) on farms showing a high figure of income, where ordinary economic considerations need not be regarded.

Apart from this economic aspect rural electrification as has already been mentioned, may be the result of politico-social motives, and this is the position in the United States

Now that the majority of farms, have already been supplied with electricity, the extension of electrical service to other farms is simply desiderable as a means of raising the standard of living in the country. In saying this it is not intended to minimize the advantages which electricity brings to the farms It should however, be understood that, if an effective increase in the percentage of electrified farms is desired, some form of subsidy based on the intangible benefits of electricity in the home and not on its advantages in farm operations, in required

U. S. S. R. — Since the inauguration of the scheme for the electrification of the country side (*Goelro*) in 1920, great progress has beed made in the production of electricity in the U. S S R. To-day the U. S S R is classed among the largest producers of electric power In 1936, 32,000 million Kwh were consumed, the greater part being adopted for agricultural uses.

H. J. HOPFEN

Publications consulted:

Transactions of the World Power Conference, Washington 1936

Rural Electrification and Electro-farming, London, Years 1933-37

ADAMS TH. Die Verwendung der elektrischen Energie in der deutschen Landwirtschaft — Diss Jena, 1932, 73 pp.

PRÉAUD R L'électrification rurale en France — *Bulletin de la Société d'encouragement pour l'Industrie Nationale*, Paris, 1937, nº 1-2, 33-50 pp

SALVINI G Industria elettrica ed elettroagricoltura. — *R. Scuola d'Ingegneria di Pisa* Pisa, 1932, 1-22 pp

ROTHAMSTED CONFERENCES XXI The use of electricity in Agriculture, Rothamsted 1936, 77 pp

MISCELLANEOUS INFORMATION

ARTIFICIAL FECUNDATION OF LIVE-STOCK: Towards the end of 1936, a scheme of collaboration between the U. S. A. Department of Agriculture and the Argentine Ministry of Agriculture was drawn up for the purpose of carrying out a series of trials for the artificial fecundation of live-stock. The principal characteristic of these experiments consists in preserving the animal sperm obtained by Dr. Fred. W. MILLER at the U. S. Animal Husbandry Experiment Farm, Beltsville, (Maryland), alive up to the time of its utilization in the fecundation of the Argentine herds. In order to contribute towards the successful issue of these experiments, the Pan-American Airways System has placed its regular aeroplane service, operating between Argentina and the United States, at the disposal of the authorities, free of charge.

It is generally known that one of the fundamental characteristics of artificial fecundation is the prolongation of the vitality of the spermatozoids, in order to facilitate their transport over considerable distances Towards the middle of 1936, certain experiments were carried out between Great Britain and Poland on sheep, and on this occasion, it was possible to keep the sperm alive for two days. The present experiments of Dr MILLER relate to cattle; in recent trials, it was found that the sperm maintained a good vitality for a period of 15 days.

Research workers have already been studying this question for over a century, with a view to obtaining an improved system of cross-breeding, a fuller utilization of the services of pedigree breeding animals and a decreased sterility in the female animals

A P.

BOOK NOTICES *

PEROTIN J *La question viticole au Maroc* Bordeaux 1936, 294 pp

During the course of a long sojourn in North Africa, the A obtained the various data published in this study of the essential question of vine-growing in Morocco In this country, where the soil is particularly suitable for the cultivation of the grape-vine, a rapid development has taken place and the requirements of population are now exceeded Morocco, a country of recent establishment, as the A says, does not occupy a particularly favourable position as regards the export trade, the wine markets being monopolized by other countries and overstocked with their products; on the other hand, with the commercial agreements at present in force, it is not always possible to prevent the importation of foreign wines. It does not therefore appear probable that an increased consumption of Moroccan wines will be obtained in the country, this consumption having attained a maximum as regards Europeans, and the Arabs consuming only fresh or dried grapes. The best means for remedying this crisis of over-production would be the suppression of part of the vineyards in order to reduce their area to the level necessary to meet the possibilities of the country's own consumption

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* Under this heading are included short synopses of books received for review.

In the first part of this work, the A. studies the development of this crisis, its causes, and the measures now to be proposed. In the second and third sections, the present markets and the Moroccan regulations regarding vine-growing are described. Some interesting chapters deal with the native Mussulman and Jewish consumption and with the export trade on the French colonial and foreign markets. Among other means of absorbing output, mentioned by the A., is the use of fresh grapes, which may be obtained in Morocco both earlier and later than elsewhere, and also of grape juice preserved with benzoate for sale to the natives

A complete list of the regulations on vine-growing and the wine trade in Morocco, published in 1936, is given in an appendix An extensive bibliography concludes the work]

M J.

Prof Dott Telesforo BONADONNA, *Le basi scientifiche e le possibilità applicative della Fecondazione artificiale negli animali domestici*, Brescia 1937, Vol I, 45 diagrams and 90 photos, 599 pp

[The question of artificial fecundation is by no means of recent date Malpighi had already studied the problem in 1670; later Spallanzani, in 1779, obtained successful results for the first time in experimenting on a bitch This practice was subsequently adopted, chiefly for horses, in France, Germany, England, and North America It was, however, the Russian scientist, Ivanov, who in the XIXth century, placed the whole question on a technical and economic basis

Artificial fecundation offers the advantage of a fuller and more profitable utilization of male breeding animals, and in consequence, the cross-breeding required for the improvement of domestic animals is more easily carried out For this reason, the Soviet Government, being desirous to reconstitute the national head of live-stock, which had been adversely affected during the first years of the collectivist regime has extended this practice very considerably in the *kolkhozes* and the *sovkhozes* of the Union To give some idea of the importance of the results obtained by this method in U S S R, it is sufficient to note that in 1935, 4,250,000 female animals were artificially fecundated

Prof BONADONNA, as the result of a visit for the purpose of studying the subject in U S S R, reviews the present state of the question in this country, in a chapter entitled Notes on the technical principles and the possibilities of artificial fecundation for domestic animals Another chapter is devoted to the part played by Italian scientists in the study of this question The A then gives a translation of, the work of Prof V K Milovanov *The principles of artificial fecundation* The chapters are as follows (1) The general biological bases of artificial fecundation; (2) Collection of the sperm; (3) Technology of the sperm; (4) Fecundation; (5) Artificial fecundation in animal husbandry practice; (6) System of rules for the feeding, maintenance and valuation of the male breeding animal. From the technical point of view, this work is the most complete yet issued, further data of a practical order taken from another work by the same author are inserted by the translator.

The book concludes with the Proceedings of the 1st Congress on the Artificial Fecundation of Farm Animals, which took place at Moscow from 28 December, 1933 to 4 January, 1934, which are of particular importance because of the large amount of practical information therein contained.

M. J.

Wagner, Otto, *Der Obstbau im landwirtschaftlichen Betriebe*. Arbeiten des Reichsnährstandes, Vol. 17, Berlin Reichnährstand Verlags-Gesellschaft, 1937, 78 pp., 34 figs.

[There appears to be rather a superabundance of books in the German language dealing with fruit cultivation; the present work is however of importance because fruit growing is considered from the point of view of agricultural enterprise, and of the small farm in particular, and also because fruit growing, especially in Germany, where it is now self-sufficing, has special importance in this connection. For this reason, the A. has entitled his work: « Campaign for an increase in fruit production ».

The A. considers the choice of the variety as the most difficult problem. Omitting all description of the innumerable varieties, he advocates planting on the farms, only such varieties as have already become well-established in the district owing to the productivity, and the high commercial value of the fruits. The less favourable the soil and climatic conditions, the greater the necessity for carefully selecting the most suitable varieties and restricting them to a limited number.

Proper prominence is assigned to the question of fertilization. The A. also deals with the planting of fruit trees. planting period, methods, planting distance, etc. The A lays special emphasis on the cultivation methods to be adopted for fruit trees during the growth. period. He considers that careful treatment as regards pruning, fertilization and the control of pests and diseases is the fundamental requisite for successful fruit production on the peasant farm One of the most important methods of all is the regrafting of trees with a poor yield either in quantity or quality, due to the unsuccessful adaptation of the variety to local conditions.

The concluding chapter is devoted to the questions of fruit marketing and storage and also fruit exhibitions, which have an important instructional and educational value].

N. G.

Hahne J , *Der Wintergerstenbau*. Arbeiten des Reischnahrstandes, Vol , 18 Berlin Reischnahrstand Verlags-Gesellschaft, 1937, 88 pp , 30 figs.

[Although the cultivation of winter barley has developed considerably in Germany in recent years, this crop in 1936 only covered 2 1 per cent of the arable land. The A. considers that this cereal merits wider diffusion The yield per ha of winter barley is superior to that of all other cereals commonly cultivated in Germany. The average yield per ha during the period 1932-1935 amounted to 25 qx. (as against 22.4 qx. for wheat) and this average shows a marked tendency to increase.

Among the economic advantages obtained through the cultivation of winter barley, the A. draws special attention to the improved distribution of farm work Winter barley is sown in the autumn before rye and is ready for harvesting at a relatively slack period, between the harvesting of hay, of rye and of other cereals The early ripening of winter barley renders it especially suitable as a catch crop In this connection, the A. advocates sowing clover, or a mixture or leguminous forage plants or else a rutubaga crop, etc.

According to the A., in crop rotation, winter barley should occupy a place superior to oats, and one more favourable than that usually given. The farmer would consequently obtain higher yields than are usually found with other cereals

After having indicated the requirements of winter barley as regards climate and soil, the A. gives detailed information on the methods of cultivation: preparation of the soil, manuring, sowing, methods of cropping and harvesting. He discusses in detail questions of varieties and of the control of weeds, diseases and pests. In the concluding chapter, in dealing with the use of barley on the farm itself and elsewhere, certain economic considerations are also discussed].

N. G.

SCHMIDT Hugo, *Zucht und Anbau von Korbweiden*, Arbeiten des Reichsnährstandes Vol. 19, Berlin, Reischsnährstand Verlags-Gesellschaft, 1937, 50 pp., 11 figs.

[This brochure, which deals with the selection and growing of willows for basket-making, is written by a practical man and intended for the use of persons occupied in willow cultivation.

Following some general considerations, the writer describes the methods of willow growing, including the preparation of the soil, planting, methods of cultivation and harvesting.

By far the most interesting and important chapter is that in which the different species and varieties of willows and selection methods are treated. Taking into consideration the fact that, up to the present, the willow tree used for basket making, has never been subjected, either in Germany or elsewhere, to effective selection work, important results may be expected from these experiments. The A. describes his own selection trials, carried out for a period of over 10 years. The winnowers are justified in complaining that the rods furnished in the trade vary considerably in quality; some break easily, and others are difficult to strip. Consequently, selection work is necessary not only to improve yield but also, and more important still, quality. The A. notes the different varieties of willow suitable for cultivation, the best being *Salix viminalis*, followed by *S. purpurea*, *S. americana*, etc.

In Germany it is forbidden to sell osier withes except those produced in plantations specially recognized for the purpose. In Chapter IV will be found the regulations of 18 December 1935 under which the trade is controlled.

A very full chapter deals with the diseases and pests of the willow. In discussing these question the A. keeps very closely to the treatise prepared by Prof. LUDWIGS and Dr SCHMIDT, and published by the Central Plant Protection Station of Berlin-Dahlem].

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography.

GRAF, D. W. Bibliography on land drainage. [Washington], 1936. 245 p (United States department of agriculture. Bureau of agricultural engineering).

General.

CASALINI, M. Le istituzioni create dallo Stato per l'agricoltura. Roma, « I. E. M. I. A. », presso « Villaggio e i campi », [1937], X, 413 p.

PAYS-BAS. DIRECTIE VAN DEN LANDBOUW. L'agriculture aux Pays-Bas. [La Haye, 1937]. 193 p.

REISCHLE, H. und W. SAURE. Der Reichsnährstand. Aufbau, Aufgaben und Bedeutung, 2. Aufl. Berlin, Reichsnährstand Verlags-Ges. m. b. H., [1934]. VIII, 373 p.

SCOTTISH AGRICULTURAL ORGANISATION SOCIETY LTD. Report for the year 1936. Edinburgh, Turnbull & Spears, [1937], 60 p.

SOUTH-EASTERN AGRICULTURAL COLLEGE, WYE, KENT. The Journal. No. 40. July 1937. [London, Headley brothers], 1937. 188 p. (University of London).

Agricultural Education

KOCH, H. Lehrling, Lehrherr, Landwirtschaft. Berlin, Reichsnährstand Verlags-Ges. m. b. H., [1936]. 106 p.

General Agronomy

ACERBO, G. La bonifica integrale e la sistemazione montana. Roma, Bardi, 1937. 12 p. (Reale Accademia nazionale dei Lincei).

Plant Protection.

FRANK, F. Kartoffelbau und Kartoffel-Krankheiten. Bruck a d. Mur, [Verlag H. Schmerzeck], 1936, 56 p.

RONCORONI, E Illustrazioni sugli insetti. Varese Tip arcivescovile dell'Addolorata, 1937 XI, 427 p. (Consorzio obbligatorio provinciale per la lotta contro il maggiolino e la processionaria del pino nella provincia di Varese).

Tropical and Subtropical Crops.

THE COTTON TRADE JOURNAL 9th International edition 1937. New Orleans, [1937]. 176 p.

Horticulture.

CONGRÈS DE LA NOIX DE GRENOBLE, SAINT-MARCELLIN, 1936 Le Congrès de la noix de Grenoble, 10-11 octobre 1936, par H. Roy. [Voiron, Impr. H. Bailloud, 1937 87 p].

KEPNER, C. D and J. H SOOTHILL The banana empire. A case study of economic imperialism. New York, The Vanguard press, [1935]. xiii, 392 p. (Studies in American imperialism).

LAFFORGUE, G. et A. LOUIS. Traité pratique d'arboriculture fruitière basé sur la physiologie. 3^{e} édition revue, corrigée et augmentée Bordeaux, Impr G. Tisseraud, 1936 208 p.

Viticulture.

PEROTIN, J. La question viticole au Maroc Suivie de la réglementation complète de la viticulture et du commerce des vins au Maroc. Bordeaux, [R. Picquot], 1936. 297 p.

Forestry.

AGENDA FORESTIER DE L'INDUSTRIE DU BOIS, publié par la Société vaudoise de sylviculture avec la collaboration de l'Association forestière vaudoise. Edition 1937. 30ème année. Lausanne, Porchet, [1937]. 118 p.

PARDÉ, L. Les conifères. Paris, Maison rustique. [1937] 308 p.

Animal Husbandry.

CONGRÈS DE LA SÉLECTION ANIMALE, PARIS, 1936. La sélection animale. Compte-rendu des travaux du Congrès de la sélection animale (Paris 7 et 8 décembre, 1936). Paris, Société nationale d'encouragement à l'agriculture, [1937]. 411, 31 p.

COX, E. W. The evolution of the Australian Merino. Sydney, Angus & Robertson, 1936. xxii, 160 p.

FERRARI, P. Compendio di zootecnia, con note di genetica, chimica fisiologica, patologia veterinaria, ecc. Città di Castello, « Il solco », 1937. 202 p.

THE PIG BREEDERS' ANNUAL AND YEAR BOOK OF THE NATIONAL PIG BREEDERS' ASSOCIATION FOR 1937-38 v 17th. London, National pig breeders' association, [1937]. 296 p.

THE MORTGAGE LIFTER A practical hog book. Chicago, Ill., «Hog breeder», [1936]. 255 p

Agricultural Engineering.

SECOND CONFERENCE ON MECHANIZED FARMING. RHODES HOUSE, OXFORD. January 5-8 1937 Programm and papers. Report of discussions. Oxford, [Alden press, 1937] 2 vols

WALTER, F. Das westfälische Bauernhaus Dortmund, Fr. Wilh Ruhfus, 1936. 128 p (Westfalische Kunsthefte, hrsg. im Auftrage des Provinzialverbandes von Wilhelm Rave, Hft 5).

Agricultural Industries

HERRMANN, C Die Textilrohstoffversorgung Deutschlands Jena, Fischer, 1937. 31 p. (Kieler Vortrage, gehalten im Institut fur Weltwirtschaft an der Universitat Kiel, hrsg. von Andreas Predohl, 48)

HOT, A. L'alcool en France (Régime économique et fiscal) Montpellier, « La journée vinicole », 1937. 342 p

INTERNATIONAL ASSOCIATION OF MILK SANITARIANS. 25th Annual report including papers read at the annual convention in Atlantic City, N. J. October 14, 15 and 16 1936. Albany, N. Y., 1937 404 p

SIEVERS, O Die gewerbliche Herstellung der Obst-, Gemuse- und Fleisch-Konserwen 3 Aufl. Braunschweig, Braunschweigische Konserven-Zeitung, [1936] 248 p.

Miscellaneous.

ANNUAL REVIEW OF BIOCHEMISTRY. Edited by James Murray Luck. v. 6. Stanford, Stanford University press, 1937. 708 p.

FAUNA OF BRITISH INDIA, INCLUDING CEYLON AND BURMA London, Taylor & Francis, 1912.

[vol. 7. part 5] Moths· Sphingidae, by T. R. D. Bell and F. B. Scott. 1937. 537 p.

SECOND INTERNATIONAL CONGRESS FOR MICROBIOLOGY. London, 25 July-1 August 1936. Report of proceedings. London, 1937, 579 p. (International society of microbiology).

SOCIÉTÉ DES SCIENCES DE NANCY. Mémoires. Année 1936. Série VI. Tome IV. Nancy, Société d'impressions typographyques, 1936. 65 p.

SOCIETY OF BIOLOGICAL CHEMISTS. INDIA. Annual review of biochemical and allied research in India. v. VII 1936. [Bangalore City, The Bangalore press, 1937]. 165 p.

Periodicals (1), (2), (3).

AGRICOLTURA libica; bollettino mensile del R° Ufficio centrale per i servizi agrari della Libia, Tripoli, [Stab. pol. Ed. P. Maggi], v. 6 (1937)-, mens. L. 12. [v. 1 (1932)-v. 4 (June 1935) under the title: « Bollettino del R° Ufficio per i servizi agrari della Tripolitania »; v. 4 (July 1935)-v. 5 (1936) under the title: « Bollettino del R° Ufficio per i servizi agrari della Libia »].

AKADEMIIA naouk OuRSR. Institout botaniki. Журнал Інституту ботаніки Академії наук УРСР. Київ. Академія наук УРСР, n° 5 (13) (1935)-, irr. [Contents and summaries of articles in German, English or French]. Journal of the Botanical Institute of the Academy of Sciences of the Ukrainian S. S. R.

BRASSEUR français; organe officiel de l'Union générale des syndicats de la brasserie française et de la Chambre syndicale de la malterie française, Paris, [Imprimerie de publications périodiques], v 1 (1937)-, bimens.

BULLETIN of the health organisation. League of Nations, Geneva, [Health section of the League of Nations], v. 6 (1937)-, bimestr. 10s. ou $ 2,50.

CELLULOSA; bollettino ufficiale dell'Ente nazionale per la cellulosa e per la carta. Roma, [Tipografia de « L'Italie »], v 1 (1937)-, bimestr L. 50 int , L. 100 étr.

CHÊNE; forêts, chasse, pêche, tourisme. [Le Chêne, société forestière méditerranéenne et coloniale, Marseille]. [Desfossés-Néogravure, Paris] n° 1, 1931-, trim

COMITÉ cotonier congolais, Bruxelles. Bulletin trimestriel... Bruxelles, v. 1 (1936)-, trim.

FUTTERMITTEL-Industrie; Organ der Fachgruppe Futtermittelindustrie Halle a. S. Carl Marhold Verlagsbuchhandlung, v. 27 (1937)-, mens RM. 9. (Forsetzung der Zeitschrift « Die Trocknungs-Industrie »)

GLEBA i nawozenie potasowe; Referaty prac. Poznań, Zakład gleboznawstwa Uniwersytetu P[oznańskiego], v 1 (1937)-, irr [Le sol et l'emploi des engrais potassiques Comptes-rendus des travaux]

INFORMAZIONI agricole Istituto fascista di tecnica e propaganda agraria, Roma, 1937-, mens L. 10 [Supplement to « Agricoltura fascista »].

INSTITUT international du cinématographe éducateur Communications Roma, Tip. R. M. Doniselli, v. 1 (1937)-, irr. [Mimeographed].

INTERNATIONAL review of poultry science; official organ of the World's poultry science association, Rotterdam, Dr B J. C. Te Hennepe, v. 1 (1928)-, irr. $ 5 00.

LIBRO italiano, rassegna bibliografica generale Pubblicazione mensile a cura del Ministero dell'Educazione nazionale e del Ministero della Cultura popolare, Roma, Libreria Ulpiano Editrice, v 1 (1937)-, L. 100 int , L. 150 étr , with « Repertorio annuale » L. 150 int ; L 220 étr

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(1) Previous list June 1937. To be continued December 1937.

(2) List of abbreviations: bihebd (biweekly); bimens. (twice monthly); bimestr (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebd. (weekly); int. (home price); irr (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q (daily); sem. (half yearly); s (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory ntoes not appearing in the title of the review.

MIETITORE A cura della Confederazione fascista dei lavoratori dell'agricoltura, Roma, [Società an « Arte della stampa »], v 3 (1937)-, irr. [Supplement to « Lavoro agricolo fascista »].

NATIONAL horticultural magazine, journal of the American horticultural society, Washington, D. C (B Y. Morrison], v 14 (1935)-, trim $ 3.00.

REICHSMINISTERIALBLATT der Forstverwaltung. Herausgegeben vom Reichsforstamt und Preussischen Landesforstamt zugleich Amtsblatt der obersten Naturschutzbehorde Berlin, [Reichsnährstand Verlag-Ges m b H], v. 1 (1937)-, hebd. RM. 8

ROMÂNIA viticolă, revistă lunară de viticultură şi oenologie, Bucureşti, [Bucovina – I. E. Torouţiu], v. 1 (1937)-, mens Lei 250

RUSSIE Blanche Seliskagaspadartchy instytout. Труды Беларускага сельскагаспадарчага інстытута. Горкі, Беларускі сельскагаспадарчы інстытут, v. 1 (23) (1935)-, irr [Title in English and Russian also. Text in Russian or White-Russian; contents and summaries in German or English.] Annals of the White Russian agricultural institute

SETA, bollettino di sericoltura, organo ufficiale mensile della Federazione nazionale fascista degli industriali della seta Milano, [Stamperia e tipografia S E T I], v 43 (1937)- L 75 int, L 125 étr [v 1 (1908)- v 43 (avril 1937) under the title « Bollettino di sericoltura ». Separate supplement, since 1937 « Notiziario settimanale »]

SUGAR bulletin, [official organ of the American sugar cane league of the U S A], New Orleans, La [Reginald Dykers], v 15 (1937)- bimens $ 0,50

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

[illegible]
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MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

AGRICULTURAL EDUCATION IN THE UNITED STATES

Historical.

The successful ending to the wars of Independence marked the beginning of a period of intense expansion of every kind in the United States of America; the leaders of public opinion as well as the heads of business concerns of the country cooperated in the plan of developing the agricultural, industrial and commercial possibilities, etc. of the new nation, which was chiefly one of agricultural and rural activities

For some considerable time, North America had already been the object of great interest to scientific workers, many of whom during the 18th and 19th centuries carried out research studies of every kind Among those who were most closely associated with the agricultural movement, mention may be made of Benjamin Smith Barton (1766-1815) professor of natural history and botany at the Philadelphia College, John Bartram (1699-1777) and his son William Bartram (1732-1823) who contributed considerably to a better acquaintance of American indigenous plants; Humphrey Marshall (1732-1801) who published a list of indigenous plants; Gerard Troost (1776-1850), founder and first president of the Academy of Natural Sciences at Philadelphia

During the 18th century and at the beginning of the 19th, in U S A. many associations were established for the purpose of bringing about improvements in agriculture: among these were, the Philadelphia Society for promoting Agriculture, founded in 1785, the South Carolina Society for the promotion and improvement of agriculture, organized at Charlestown in 1785, the New Jersey Society for promoting agriculture, commerce and art founded in 1781. Similar associations were established in the following states· Massachusetts in 1792, New Hampshire in 1814, Virginia in 1811 In 1852, there were approximately 300 organizations in active operation divided over 31 States and 5 territories, and in 1860, 941 agricultural associations were registered with the United States Society of Agriculture.

Contemporaneously with the rise of these societies, State Boards of Agriculture were established; the first was founded in 1819 at New York; the example of New York was followed in 1820 by New Hamsphire, in 1846 by Ohio and in 1851 by Massachusetts; the object of these Boards being the promotion of agricultural education and the improvement of agriculture in all its branches. Meanwhile the American press had made its appearance (New Jersey Gazette in 1776, the Agricultural Museum in 1810, the American Farmer in 1819, the Horticultural Register in 1835, etc.) numerous treatises on agriculture, stock farming and horticulture were published between 1750 and 1850, especially when agricultural instruction began in the schools of the country.

In 1819, Josiah Holbrook established an industrial school on similar lines to Fellenberg's College and in 1824, opened an agricultural school at Derby which was later closed owing to lack of financial support.

During the 18th century and at beginning of the 19th, instruction in natural sciences had been gradually introduced in some of the colleges of North America; in 1727, a section for natural philosophy was founded in the Harvard College and a professorship of natural history was established in 1804; previous to 1820, the institutions giving instruction in natural sciences were the Williams, Bowdoin William and Mary, Dickinson and Hobart Colleges, as well as the Georgia, North Carolina and South Carolina Universities.

Between 1819 and 1830, many schools of mechanic arts were founded, affording an easy means of introduction to agricultural practices; at the same time many institutions where theoretical and practical instruction in agriculture is combined with the different accademical studies given in the secondary schools were opened; these institutions which may be classed among schools of agriculture, differed very considerably, especially in respect of agricultural instruction; as a general rule, this instruction was of a superficial and temporary nature. Their greatest value lay in the stimulation of the movement in favour of the founding of agricultural colleges and experiment stations. Among these schools may be mentioned the Gardiner Lyceum (Maine) founded in 1821, the Agricultural Seminary of Derby (Conn.) in 1824, the Boston Asylum and Farm School (Thompson's Island) established in 1832, the Cream Hill Agricultural School (Conn.) founded in 1845

Agricultural and scientific instruction was also given in numerous private colleges; the first of this kind is the Rensselaer Institute, founded in 1824 at Troy, N. Y.; agricultural instruction was introduced into Washington College (now Trinity College) in 1824, also into Amherst College (Massachussetts) in 1843 and into the Farmers' College, Ohio in 1846.

However little progress was made through the introduction of agricultural instruction in institutions which were entirely under private control and everyone desirous of seeing agricultural education placed on a proper basis, considered that the Government only could effectively put this plan into execution. In some States a movement in favour of this solution arose. This movement will extend and consequently result in the founding of State Colleges of agriculture and their endowment by means of the Land-Grant Act of 1862. The States where State institutions were established giving an agricultural instruction before 1862 were the following: New York, Virginia, Michigan, Connecticut, Maryland, Pennsylvania, Georgia, Ohio, Wisconsin, Massachussetts, Vermont and Illinois.

In 1851-52 Richard Yates, Illinois deputy at the Congress, presented to the Society of Agriculture of the United States the Turner's plan in favour of the establishment of an industrial University in each State; and in 1852, the second Illinois Farmer's Convention passed a resolution to request Congress to use the funds obtained from the sale of public lands to endow educational institutions. This motion was presented to Congress in 1854 when however, it was not taken into consideration. During the course of the succeeding years, numerous persons of influence urged the opinion of the American agricultural world in favour of the Illinois resolution; these were Professor Henry of the Smithsonian Istitution, Mr. Byngton of Connecticut; Turner, originator of this plan and Murray, representing the Illinois Confederation at the North-West Industrial Convention, urged the Associations and influential members from Iowa, Minnesota, Oregon and other States between 1854 and 1857, in order to obtain a Federal endowment for the establishment of industrial Universities.

When Buchanan became president in 1857, the partisans of this federal grant decided to again bring up the question before Congress. However, it was only in 1862 that Justin Smith Morrill, then Vermont deputy at Congress, succeeded in passing the law which bears his name.

This Law is the basis of the present Agricultural Education Organization in the United States.

Present state of agricultural education.

Agricultural instruction is given in Land-grant Institutions. The main principle followed in their establishment was that of the democratization of higher studies, which principle was ratified by the Morrill Act promulgated by Congress in 1862. In virtue of this Act, each State or territory on request would receive a certain number of lands not yet claimed and situated in the West; from the revenue obtained by the sale of these lands each State would thus assure under certain conditions the establishment, assistance and upkeep of at least one college where not only would instruction be given in the sciences, classics, military tactics, but also in all branches of agriculture and mechanic arts.

The first State to take advantage of this Act was Iowa in 1862; 14 States followed suit in 1863 and 37 in 1871. According to the regulations of the Act each State would receive 30.000 acres of land for each senator and deputy at Congress. Therefore New York State obtained the largest area of land (990,000 acres), for the remaining States the average varied between 90,000 and 350,000 acres. The method followed by each State in the organization of these new types of colleges differed very considerably; in 15 States where Universities and State Colleges were already in existence at the time when the law was passed at Congress, the revenues obtained from this endowment were allotted to these institutions for the purpose of organizing colleges or divisions for agriculture and mechanic arts. In 28 States, the Legislative Assembly decided to found new colleges of agriculture and mechanic arts, controlled and directed by the State. The Southern States organized colleges of agriculture and mechanic arts for white people and also for negroes.

The next stage in the organization of this agricultural education was marked by the Hatch Act in 1887, by virtue of which an experiment station was to be established in each State of the Union; these stations would preferably be connected with the land-grant colleges, whose functions were not only resident instruction but also research work. The Federal subsidies for each station thus established amounted to 15,000 dollars per annum.

The second Morrill Act, adopted in 1890 granted to each college, a maximum annual Federal subsidy of 25,000 dollars, obtained from the sale of public lands; this supplementary grant thus completed the initial endowment. In the same way, the Adam Act in 1906 granted to experiment stations a Federal subsidy beginning with 5,000 dollars and amounting to a maximum of 15,000 dollars at the end of 5 years.

At the beginning of the twentieth century, the advantage of having an industrial, vocational and agricultural education in the secondary and elementary schools was noted; the introduction of this instruction in the public schools necessitated the training of specialized teachers which became the perogative of the land-grant colleges which received an annual supplementary subsidy of 25,000 dollars (amendment of Senator Knute Nelson in 1907). This amendment was drawn up in practically the same way as the second Morrill Act, with this exception that the colleges could utilize part of this sum for the training of teachers intended to give elementary instruction in agriculture and mechanic arts.

With regard to feminine education, the introduction of instruction in home economics in the curriculum of the land-grant colleges has particularly widened the scope of these latter in extending to women the benefits of the vast movement of democratization in higher education. From 1875, the agricultural colleges of Iowa and Kansas already gave courses in sewing, cooking, chemistry of food and nutrition. In 1890, only 4 land-grant colleges had sections of home economics. In 1910, the influence of the American Association of Agricultural Colleges and Experiment Stations contributed considerably to the establishment of a 4 years course in home economics in many land-grant colleges, but not until a later period did instruction in home economics become an integral part of the curricula in these institutions.

Another important stage in the history of agricultural education was marked by the adoption by Congress of the Smith-Lever Extension Act, by virtue of which the practical agricultural education of the people would be assured by a staff dependent on the colleges and actually living in agricultural areas. One of the most effective results of this Act was the acknowledgement of the necessity for home economics for women. Considerable funds were required for the establishment and upkeep in each county of the States of a vast organization of delegates from the colleges; the Federal Government took the initiative in offering half the necessary capital; the remainder to be supplied by the States, counties and colleges. The law establishing this new type of instruction is known as the Smith-Lever Act, from the name of the Representative and Senator who caused it to be passed before the House of Representatives and before the Senate in 1912.

All the States took advantage of this Act, and shortly after, by means of agricultural officials nominated in the counties, practical instruction in agriculture and home economics was brought from the colleges to the rural population.

During the following year, further Federal laws were passed in favour of the land-grant colleges; these concerned the financial aspect and their educational programme: first of all, the Smith-Hughes Act in 1917 dealing with the development of vocational instruction in agriculture, commerce, home economics industry and the training of teachers specialized in these different branches. In accordance with this Act, a National Council for Vocational Instruction was established, and also a local council in each State.

The Purnell Act in 1925 determined the kind of research work to be carried out by the experiment stations of the colleges. Finally, the Capper-Ketcham Act approved in 1928, increased the annual Federal subsidy granted to the colleges by 980,000 dollars.

PRESENT ORGANIZATION OF LAND-GRANT COLLEGES

Governing Board.

A Land-grant college or State University is controlled by a Governing Board, a legislative body which may hold at the same time administrative, executive and supervisory powers. This Board sees to all details concerning the Institution, maintenance of its estates, finances, and educational programme. The method employed in forming these Boards varies; women may also take part in them, election is obtained either by popular vote (in three States), nomination by the State Governor (24 States), by the Governor with the consent of the Senate (12 States) or else by the Legislative Assembly of the State

In the conventional institution of higher education, the president is the chief executive officer, two administrative offices come immediately under his control, the office of financial affairs and that of the registrar Also a certain number of other administrative bureaux are entrusted with specific functions regarding the institution; in this group may be placed the deans for men and women, the directors or deans for instruction, research work, extension, the vice-president and the assistants of the president In some cases the president is called chancellor; this post is generally of indefinite duration.

Financial situation of Land-Grant colleges.

From a financial point of view, the land-grant colleges are placed in a position which may be described as strategic; being maintained by means of public taxes, the advantage of a stable income is assured The colleges also receive subsidies from private institutions in the form of endowments, dividends etc. Moreover, they obtain further regular grants from the Federal Government and the State.

The incomes received by the colleges during the last 20 years have increased enormously; this increase is due pratically entirely to the augmentation of State grants. The land-grant colleges do not give free instruction; nevertheless, student fees play a more or less important part in the returns budget amounting up to 27.1 per cent. in some instances (Vermont University), and not exceeding 0.7 per cent in others (College of Agriculture and Mechanic Arts in New Mexico).

The subsidies allotted to the land-grant colleges by the Federal Government are obtained from 6 differents funds, established by virtue of the following laws: Land Grant Act in 1862, Morrill Act in 1890, the Nelson Amendment of 1907, Smith-Hughes Act, Hatch-Adams Acts, Purnell Act and the Smith-Lever Act.

With regard to the apportionment of the expenses, it may be said that 82 per cent. of the total revenue is allotted for instruction at the college, for extension, the experiment station and the library, the remaining 18 per cent. covers the administrative expenditure, general charges, etc

Resident education at the college only absorbs approximately 50 per cent. of the sums allotted for instruction (about 75 per cent at the University of Puerto Rico, only 17 7 per cent at the College of Agriculture and Mechanic Arts of Mississippi) Agricultural extension takes approximately 15 4 per cent of the total expenditure required for instruction. By "agricultural extension" is intended the instruction given to the people by the land-grant colleges by means of agricultural agents in the counties, house demonstration agents, correspondance courses, evening classes, etc Finally, an average of 14 per cent of the funds allotted for instruction are required for the experiment stations

According to Bulletin No. 9 of the Bureau of Education, Department of the Interior, U S A, the total value of landed property of the 52 colleges was estimated at 427,005,366 dollars in 1930, an estimation based on the original cost price, valuations, or on both the cost price and valuations. In this sum, 10 8 per cent cover the grounds and university campus; 40 5 per cent the buildings excluding dwelling places; 4 8 per cent the resident halls; 12 6 per cent the apparatus, machinery and furniture; 0.06 per cent, the live-stock; 3.8 per cent, publications for the library; 6 5 per cent., the Federal Grant endowments, 17 9 per cent., other endowments; 2 5 per cent, different properties

College Fees: The original concept of the land-graud college was that of an institution of higher education without fees making an integral part of the free public school system; this concept gradually changed and at present, practically every land-grant college receives college fees. These fees are apportionated in three general groups: the fees for the instruction itself, special fees for specific purposes, and laboratory fees. In 1928, the college fees received by all the land-grant colleges and universities amounted to 15,388,563 dollars. These sums are either retained by the institution or else deposited in the State Treasury.

Lands and Edifices: As a rule land-grant colleges own considerable areas of land, which in many cases, exceed the actual requirements of instruction and experimentation. The landed properety of 42 colleges amounts to 119,447 acres; of this area, only 52,800 acres are reserved for the campus (area which is taken up by the various edifices of a college or university), for purposes of instruction, experiment farms, sport and military practice. The excess area is chiefly forest land. Each institution possesses from 168 to 16,083 acres. Three institutions control over 10,000 acres of land and twelve under 1,000 acres. The area taken up by the farms varies considerably; in 22 colleges the farms cover less than 1000 acres, while in many others, the surface area is from 2,000 to 3,000 acres. The number of buildings per institution is from 10 to 100 in 32 institutions and from 100 to 367 in 10 others. The States generally provide the necessary funds for construction (77 per cent. is contributed).

Admission requirements in the Land-Grant colleges.

The requirements for admission to the freshman class (first year of a four-year course) are fifteen units.

An entrance unit is the credit given for a successfully completed course pursued in an accredited high school or preparatory school for an entire academic year, with five recitations a week of not less than forty-five minutes each. Two laboratory periods count the equivalent of one recitation period.

Of these fifteen units, 8 are generally compulsory and 7 elective. With regard to the admission requirements of the various land-grant colleges, the volume on Agricultural Education in North America shortly to be published shows both the minimum number of requisite units for each compulsory course and the maximum number of units allowed for each. These courses are as follows: English, algebra, geometry, one foreign language, social sciences, biology, mathematics, physics, technical studies.

Differences in the admission requirements of the various institutions. — According to an enquiry carried out in 1928-1930 by the United States Department of the Interior (Survey of Land-grant colleges and Universities) admission requirements vary considerably from one institution to another. Some twenty institutions accept all graduates from accredited high schools; 23 admit candidates not having the necessary number of units in certain specified subjects, others require that these studies should be completed during the first year's course. Candidates who have not graduated from high schools who would have obtained the number of units required for admission to the first class of a four-year course, and comprising the units specified, may be accepted by 31 institutions on presentation of a certificate. In 15 institutions, it is necessary for the candidates to be recommended by the Principal of their high school. There are also differences depending on whether the candidates reside in the States, thus the University of Wisconsin and the University of Illinois require that non-resident students average 10 points above the passing grade. The University of Missouri require that students from other States should be in the first two-thirds of their class. On, presentation of a certificate, candidates from high schools not officially recognized are admitted by 11 institutions; 38 will not take such students; the College of Agriculture in Connecticut and the University of Tennessee subject the students to an examination in English and mathematics; at the Clemson College of Agriculture, this examination comprises English, mathematics, history and one other subject; at the University of Kentucky, these subjects are English and mathematics, and two other studies to be chosen by the student; in the Universities of West Virginia, Florida, Louisiana, Pennsylvania, Texas, the entry examination for candidates from non-accredited high schools comprises a still greater number of subjects; the University of Nebraska also sets an intelligence test.

Admission of women to college courses: Women are admitted to 47 institutions to follow undergraduate courses. Three institutions do not accept women, these are the Mississippi College of Agriculture and Mechanic Arts, the Clemson College of Agriculture, and the Texas College of Agriculture and Mechanic Arts. In 42 institutions, women are admitted both to undergraduate courses and to graduate schools. Some universities do not accept women for every course ; at the University of Minnesota, women are not allowed to take courses in mining industry and metallurgy. The University of Florida does not accept women at any class not given by the State College for women of Florida; the students must be 21 years of age.

Admission of special students: These students are those who for some reason do not fulfil the admission requirements of the college. The majority of the institutions accepting candidates of this type require that they shall be of adult age and that they have had practical experience in the subject which they wish to study. The Rutgers University and the State College of Montana do not admit special students; at the University of Tennessee, the number of these students is limited to 25 per cent. of the total number admitted Other institutions have no regulation regarding special students. (State College of North Carolina, State College of Pennyslvania).

Practically all the institutions accepting special students allow them to become regular students after the fulfilment of certain conditions, 33 institutions grant special students the facility of completing their knowledge by means of examinations, in order to become regular students; 4 institutions do not extend this privilege beyond the first year, 19 continue it beyond the third year; at the University of Arizona, these examinations may be taken at any time.

Foreign students: Seventy per cent of the foreign students are absorbed by the following institutions: the Universities of California, Illinois, Minnesota and Wisconsin, the Institute of Technology, Massachussetts, the Cornell Institute. The students from abroad come from 65 different countries; 70 per cent of this contingent is supplied by the following 9 countries: Canada, China, Mexico, Japan, India, Russia, Union of South Africa, England and Germany. The proportion of female students is 11 per cent. Approximately half of the foreign students follow courses in agriculture, these students are chiefly from South America. Nineteen land-grant colleges particularly encourage foreign students, 29 give no special facilities one way or another, and only one does not encourage them. In connection with the admission of foreign students, the following points are raised: (1) their knowledge of the English language; (2) the possibility of applying the usual standards of admission; (3) their aptitude in making the necessary social adaptations.

In respect of English, two methods are applied: the first, followed by 34 land-grant institutions, is as follows: the foreign student must present a diploma certifying that he has the same knowledge of English as the American student. The second system which is followed by 16 land-grant institutions authorizes the foreign student to substitute for the certificate in English required for admission, a similar one in his own language. In this case, which is more favourable to foreigners, the student must, however, at the same time show by written and oral examinations that he has a sufficient knowledge of English

In the majority of land-grant colleges the value of foreign diplomas or degrees is decided by the Office of Education. Many colleges refer to the American consulates abroad.

As a general rule, each candidate is judged on his individual merits The University of Illinois accept the final certificate given by the secondary schools in Europe.

Advisory Staff.

In all the land-grant institutions, staff work is dependent on two offices, that of the Dean of men and that of the Dean of women.

Office of the Dean of women: This office is in operation in 39 land-grant institutions and the title of Dean of women is given to the person in general control of the students To hold this position, the average age should be 45 years The functions which the Dean of women must carry out, are the following given in order of importance: supervision of social activities and discipline, participation in the students' organizations, supervision of housing and feeding, teaching, control of absences and the employment of students' time, sanitary control, supervision of physical education and instruction in religion.

Office of the Dean of men · The duties of a Dean of men vary considerably according to the institute. The greater part of their time is taken up by personal interviews with each student, dealing with school, financial, physical and other problems

Up to date, however, it seems that the functions of the Dean of men are not so clearly defined as those of the Dean of women

Organization of agricultural education in the Land-Grant colleges.

Taken on the whole, the organization of agricultural education is practically identical in all these institutions. There are four divisions which are as follows (*a*) The agricultural experiment station organized for research work and experimentation, (*b*) Resident instruction in agriculture; (*c*) Resident instruction in home economics, (*c*) Extension work in agriculture, home economics given by the Division of Agricultural Extension.

The work of these divisions is closely associated.

Resident instruction in agriculture.

This instruction comprises four-year courses, two-year courses, short term courses and supplementary classes for the degrees of Master and Doctor (graduate school), and courses for teachers in secondary agricultural instruction.

The students following the four-year courses are called Freshman, Sophomores, Juniors and Seniors according to each consecutive year of study.

During the first two years, no specialized studies are made as a rule. Classes are given in Agriculture, Home Economics and Industrial Arts, and especially in basic Sciences such as Chemistry, Physics, Botany, Zoology, Bacteriology Entomology; English, Mathematics, History, Economics and Agricultural Subjects are also included.

During the two subsequent years, specialized studies are made; candidates wishing to take a bachelor degree have the choice of several specialized studies, the following being the most important:

Agricultural Economics and Rural Sociology; Agricultural Education; Rural Engineering, Agronomy; Animal Husbandry, Dairy Husbandry; Horticulture.

Generally, the colleges of agriculture also give a four-years course in Agricultural Business for the post of director in commercial co-operative organizations; during the « junior » and « senior » years, special instruction is given in Marketing, Business Psychology, Geography, Statistics, Business Law, Transportation, Agricultural Economy, etc.

The four-years course of the college of agriculture leads to the degree of Bachelor of Science. Students who are unable to remain four years at college may take a two-years course; the admission requirements are the same as for the four-years course These studies are ratified by a diploma.

The land-grant colleges, also give a one-year course and short term courses of a few days to several weeks, in certain subjects (Dairying, Horticulture, etc.). These courses are essentially pratical, while the four-year courses deal principally with the theoretical aspect; some colleges, however, before allowing admission to a four-years course in agriculture, require that candidates should have already had 6 months practice in agriculture.

In the land-grant institutions, besides the college of agriculture described above, are also other colleges or schools which though not specializing in agriculture, give an instruction on similar lines; these are the School of Home Economics, School of Education, School of Engineering, and the School of Arts and Science

The School of Home Economics usually gives a four-years course terminating in a degree of Bachelor of Science; it comprises several divisions (Relative Arts, Textiles and Clothing, Infant Welfare, Nutrition, Housekeeping, Alimentation and Supervision of Institutions, Instruction in Home Economics).

The School of Education specializes in the training of principals for elementary and high schools, superintendents for rural and town schools, teachers of high schools, supervisors of all kinds. The course takes four years and is ratified by the degree of Bachelor of Science. Among the subjects taught are Physics, Biology, Agriculture, Hygiene, Home Economics, Natural Sciences, etc.

The School of Engineering usually gives a four-years course in agricultural engineering terminating in the degree of Bachelor of Science.

Among the subjects required at the *College of Arts* are Bacteriology, Botany, Chemistry, Entomology, Geology, etc.

This division of the land-grant college in a certain number of schools is therefore not absolute, as students may easily attend a course in one school and participate in a class of another. Thus students in the School of Agriculture may take a course in Bacteriology in the College of Arts

However, the bachelor degree is not the highest conferred by the universities or land-grant colleges of the United-States Each school or college of the different land-grant institutions allows students to continue further advanced studies in the special subject which they have selected by taking courses at the graduate school, after having fulfilled certain conditions Therefore on the majority of the institutions, graduate courses are held in various specialized subjects: Agriculture, Home Economics, Education, etc.

In order to be accepted for these graduate courses, candidates must already hold a bachelor degree and be approved by a special committee, the « Committee on Graduate Study », the degree obtained on the termination of these studies is that of Master of Arts or Science; usually, the student may not attain this degree until after an academic year of 36 weeks has passed since being accorded his bachelor degree.

Each student must draw up a thesis on some subject and pass a final general examination. In some cases, the schools also confer a degree of Doctor of Philosophy (after 3 years' supplementary study).

The Division of Agricultural Extension.

In each land-grant college or University there is a Division of Agricultural Extension (Smith-Lever Act, 1912). By virtue of this Act, each State received annually the sum of 10,000 dollars, plus a certain sum which increased every year for sevens years, on condition that the State also makes a grant of a similar sum each year. The amount granted by the Federal Government was proportional to the density of rural population of each State. The Smith-Lever Act gives the following definition of agricultural extension, to give instruction and practical demonstration in agriculture and home economics to persons unable to attend the college courses and impart to such persons, information on the said subjects through field demonstrations, publications etc., and this work shall be carried on in such a manner as may be mutually agreed upon by the Secretary of Agriculture and the State Agricultural College receiving the benefits of this Act.

The Officers of the Division of Agricultural Extension include a director, assistant directors in agriculture and home economics, specialists in the several branches of agriculture and home economics, and district and county agents.

The Division of Agricultural Extension will co-operate with any county in the State in employing a farm demonstration agent, or a home demonstration agent or both. The Division will pay part of the salary of such agents, the amount of money provided by the Division for this purpose depending on the amount supplied by the county.

The instruction given by the Extension Division for each State is divided into three groups. correspondance courses, extension class instruction in given centres of the State, short term courses.

I. – *Correspondance courses.* — These usually comprise three courses, (*a*) courses of college grade for persons having the requisite knowledge, but, who are prevented from being resident students at the University, owing to their occupation or other circumstances; (*b*) courses on academic subjects of college entrance grade; (*c*) courses on technical or cultural subjects for persons desirous of improving their knowledge of certain studies.

II. – *Extension class instruction.* — This instruction is organized in the different centres of each State, generally wherever it is possible to group together about twenty students. The course usually comprises 16 weekly lectures of two hours each.

III. – *Short term courses.* — These last a week or less, and deal with one subject or a group of subjects.

FORESTRY EDUCATION IN THE UNITED STATES OF AMERICA

Previous to the development of vocational instruction in forestry, forestry was already included, to a certain extent, in agricultural teaching. Towards the end of the last century, 22 land-grant colleges gave some instruction on this subject, these were the colleges of Alabama, Arkansas, Connecticut, Idaho, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Texas, Vermont, Washington, and West Virginia. This instruction consisted either of a few lessons, or of a course covering two terms, and which dealt chiefly with the general economic importance of forests, the identification of the trees, and methods of planting.

In several institutions, forestry was included in the botany and horticulture courses (the agricultural colleges of Virginia, North Carolina, Georgia, Mississippi, Colorado, Indiana, and Maine). At the beginning of the present century, the need for experts in forestry was felt, in consequence of the establishment of forest reserves by the Federal Government The year 1898 marked the beginning of vocational forestry instruction in the United States. In this year, the New York College of Forestry was founded at the Cornell University. Following the establishment of this college came the Baltimore Forest School, North Carolina in 1898, the Yale Forest School in 1900, and the Department of Forestry at the Michigan University in 1903. These schools exerted a very considerable influence on the extension of forestry instruction during the following years; the University of Minnesota has held classes on this subject since 1890; from 1900 to 1905, the following 6 institutions included forestry in their curriculum· the State College of Michigan University of Maine, Pennsylvania State Forest Academy [at Mont Alto, Harvard University, Nebraska University, Colorado College. From 1905 to 1910, the following institutions established forestry sections. the Pennsylvania State College and the University of Georgia in 1906, the University of Washington and the State College of Washington in 1907, the University of Idaho in 1909, the State College of Oregon in 1910. From 1910 to 1914, 7 other forestry schools were established at the University of Syracuse, the University of New Hampshire, the Colorado Agriculture College, the State College of Iowa, the University of Missouri, the University of Montana, the University of California. A course in technical forestry was established at Bates College, Maine in 1918. After the world war, 5 supplementary institutions gave a course in vocational forestry: the Connecticut Agricultural College, in 1923, the Louisiana State University in 1925, the Purdue University in 1926, the Agricultural College of Utah in 1927, the State College of North Carolina in 1929; the Duke University was the first in 1930 to institute a graduate forest school.

After the Great War, however, 7 schools or divisions of forestry were abolished; in 1921, the Department of Forestry of the Missouri University abolished its course in vocational forestry; the Bates College followed suit in 1922. In 1929, the forestry schools of the Pennsylvania State College and the Mont Alto College were combined into one institution – the Pennsylvania State Forest School.

A considerable number of collegiate institutions not giving any vocational courses in forestry, have, however, a certain interest in this field. Over 30 agriculture colleges include in their syllabus, one or more courses in forestry, which are taken advantage of by students in agriculture. Many colleges of arts and science own forest lands where forestry is studied. In many Universities, botanists, chemists and engineers carry out research work on the problems relating to trees and forests, the results of which are of considerable importance in forestry.

Curriculum of instruction in forestry.

Five chief branches of forestry instruction are recognized in the United States, these are Forestry properly called, Forest Protection, Forest Management, Forest Utilization, Forest Economics and Policy. The following are the chief subjects taught in each of these branches:

Sylviculture: Seeding and Plantation, Forest Areas Treatment, Regional Forestry.

Forest protection: Protection against fire, Forest Pathology, Forest Entomology.

Forest management: Forest Mensuration, Forest Finance, Forest Organization and Working Plans, Forest Administration, Range Management, Wild Life Management.

Forest Utilization: Properties, Uses and Identifications of Forest Woods, Harvesting Forest Products, Manufacturing Forest Products, Wood Seasoning and Preservative Treatment.

Forest Economics and Policy: Forest Land and Industrial Economics, Forest Policy, History of Forestry.

The majority of institutions dealing with this branch of instruction give a four-years course in general forestry. Fifteen of these institutions however, have organized courses for specializing in certain branches of study such as range management, research study etc. The University of Washington offers two curricula one of which aims at the training of technicians in Forest Management, Forest Engineering, and advanced Scientific Studies, and the other in Marketing and the Manufacture of Woods.

With regard to the diplomas granted, the four years course terminates in a Bachelor of Science of Forestry degree. However, in the majority of the institutions, before obtaining this degree, the students must complete their studies by passing two months in a summer camp in order to attain greater practice in forestry

In many universities, the studies are organized in such a manner that the students can follow two combined curricula, allowing them, for example, in five years to obtain a degree of Bachelor of Arts and also of Bachelor of Science in Forestry.

The degree of Master of Forestry may be obtained after at least a year's supplementary study, in 18 schools of forestry

The degree of Doctor of Philosophy is granted to students who have taken the courses at the Graduate School of the University where the School of Forestry is in operation. This deliberation is valid for all branches of study; there is one exception, however, and this is the University of Syracuse where the degree of Doctor in Forestry is conferred by the New York State College of Forestry, and not by the University This degree of Doctor of Philosophy is only granted to students, desirous of taking up research work and teaching. A minimum of three years study after receiving the degree of Bachelor of Forestry is necessary.

Vocational instruction in forestry: The United States have no organized schools for vocational instruction in forestry Some industries have commenced giving technical instruction in connection with their manufacturing trade. Thus the International Paper Company has instituted a definite system of apprenticeship in their mills

Training camps for forestal service: For some years, the Forestal Service has organized a series of training camps for the purpose of studying certain everyday problems or of amending any system definitely found to be unsuitable. These camps are generally held in all the western regions. and last from a few days to 6 weeks. In these camps, the work is not vocational, the curricula of instruction vary considerably according to each camp; field instruction is of course, very complete, lectures are also held on technical subjects Entomology, Pathology, Mensuration.

Semi-vocational instruction· Schools giving a semi-vocational instruction are generally known as « ranger schools ". The principal school of this kind is the New York State Ranger School, which is a Department of the College of Forestry, Syracuse University. This school has been in operation for 19 years and has been found to be of considerable utility in the training of a staff of workers intermediate between the average woodman and the professional forester.

The Pennsylvania State Forest School which gives a two-years' course for the training of practical workers, comes within this category.

THE TEACHING OF VETERINARY MEDICINE IN THE UNITED STATES

From 1855 to 1860, instruction was given in veterinary medicine in a few private schools in Boston and Philadelphia.

The New York College of Veterinary Surgeons opened in 1864 and the American Veterinary College in 1875. The St. Louís Veterinary College was established in 1875. Private schools were also opened at Chicago, Cincinnati, Baltimore, Washington, Detroit as well as in other cities. In 1868, the industrial University of Illinois (now the University of Illinois) founded a professorship in veterinary medicine. The Cornell University in the same year also established a professorship and from then onwards offered a four-years' course terminating in a degree of Bachelor of Veterinary Science; the two final years of the course were devoted entirely to veterinary studies. The degree of Doctor in Veterinary Medicine is only granted after two additional years of graduate studies. In 1894, this department of veterinary medicine became the New York State College of Veterinary Medicine.

Departments of veterinary medicine were established at the Iowa State College in 1879, the Ohio University in 1884 (this department was converted into a College of Veterinary Medicine in 1895). the University of Minnesota in 1890, and at the University of California in 1895.

Towards 1877, courses in veterinary science included in the curriculum of agriculture in the land-grant colleges, were given in Massachusetts, Maryland, New Hampshire, Pennsylvania and Vermont. The Michigan College of Agriculture held lectures in veterinary science from 1881, but it was not until 1907 that a Division of Veterinary Medicine conferring the degree of Doctor of Veterinary Medicine was established. From 1869, the Massachusetts College of Agriculture gave lectures on the diseases of domestic animals, but only in 1890 established a professorship of veterinary science. A school of veterinary science was founded at the Washington College of Agriculture in 1896.

In 1878, the U. S. A. Department of Agriculture granted the first subsidies for research work on animal diseases and the Bureau of Animal Industry was established in 1884. Towards 1900, veterinary inspectors were employed in the large towns, and also State veterinary surgeons in many States. The Hatch Act (see page 372) in 1887, brought about an increase in the number of veterinary surgeons in the experiment stations. In 1899, there were 17 veterinary schools in U. S. A. and in 1908 the Bureau of Animal Industry employed over 800 veterinary surgeons.

Private schools of veterinary medicine giving a complete course of study, predominated up to 1918, at which period they numbered 12 out of the 23 in operation. In 1923, only 3 private schools remained.

The following list gives the colleges of veterinary medicine at present in in operation in the United States:

Alabama Polytechnic Institute, College of Veterinary Medicine, Auburn.
Colorado State College, Division of Veterinary Medicine, Fort Collins.

Georgia State College of Agriculture, Veterinary Division, Athens.
Indiana Veterinary College, Indianapolis.
Iowa State College, Division of Veterinary Medicine, Ames.
Kansas State Agricultural College, Veterinary Department, Manhattan.
Michigan Agricultural College, Division of Veterinary Science, East Lansing.
New York State Veterinary College, Cornell University, Ithaca.
Ohio State University, College of Veterinary Medicine, Columbus.
St. Joseph Veterinary College, St. Joseph, Montana.
State College of Washington, Veterinary Department, Pullman.
Texas Agricultural and Mechanical College, School of Veterinary Medicine, College Station.
United States College of Veterinary Surgeons, Washington, D. C.
University of Pennsylvania, School of Veterinary Medicine,Philadelphia.

Secondary agricultural instruction.

At the time of the introduction of the Land-grant Act in 1862, agricultural instruction had practically been eliminated from the curriculum of secondary schools; it was considered that the new colleges would adequately meet the needs of the country in agricultural instruction; consequently, from 1862 to 1890, very little had been done to introduce this branch of study into secondary schools

During the subsequent 25 years, that is, up to 1915, a very definite movement developed in favour of establishing schools and courses of agriculture of average standard in a considerable number of various institutions. The inquiry held by the United States Bureau of Education in 1915 showed that secondary agricultural instruction was given in institutions of the following categories: secondary schools of agriculture at the State colleges of agriculture 28 public schools 124, special schools of agriculture receiving a State subsidy: 74; departments of vocational agriculture in the high schools controlled by the State· 421; high schools not subsidized by the State: 2,760; private secondary schools of agriculture· 12; private secondary schools (not specialized): 149; secondary and higher schools for negroes· 107, this gives a total of 3,675 schools with a more or less complete instruction in agriculture to over 73,000 students. During this period manual training and instruction in Home Economits were introduced in a considerable number of schools giving instruction in agriculture, and also in many other secondary schools. In 1917, a definite, organized development in secondary instruction in agriculture took place as a result of the Smith-Hughes Vocational Education Act.

This Act established an improved practical system of vocational education of a permanent type in the public schools of the United States; by this Act, funds were granted to the different States for the purpose of intensifying vocational education and putting it on a solid basis within a few years. In each State a Board of Vocational Education was established; the Federal Board deals direct with these State Boards instead of the schools obtaining the benefit of this Act. The granting of Federal subsidies must be approved by the Federal Board.

Proportionately as the number of schools benefiting by the Smith-Hughes Act, increase, their professors of agriculture frequently co-operate with the extension agents working in accordance with the Smith-Lever Act (see page 372). On their own initiative or at the request of persons residing in the neighbourhood of the school, the professors nominated in consequence of the Smith-Hughes Act undertook extension work among the farmers in many districts; differences arose between these two types of officials, differences which were dispelled in the « Memorandum on instruction in vocational schools and extension work in agriculture » of 21 February 1918 drawn up by the Federal Board and the Department of Agriculture. Shortly after the passing of the Smith-Hughes Act, 40 States began teachers' training in agriculture and organized vocational instruction in agriculture in the schools.

Even before the passing of the Smith-Hughes Act, it became evident that secondary instruction in agriculture would be given chiefly in the local high schools; although the schools specializing in agriculture covered a wider range of subjects, and had a more numerous staff at their disposal, it was not possible to devote sufficient time to practical work owing to the considerable number of students. There are only 170 schools in U. S. A. giving special instruction in agriculture, already in 1918, according to the statistics of Federal Board of Vocational Education, 609 schools were receiving subsidies by virtue of the Smith-Hughes Act; in 1923, this number amounted to 2,673. These schools range from the small institution in the village or country to the high schools in the town. Short winter courses and evening classes are continually increased.

A particularly intensive activity for the expansion of vocational education in agriculture for negroes took place in the Southern States. Negro teachers of agriculture are trained in the land-grant colleges for negroes and also in the Hampton and Tuskegee Institutes.

Thirteen States have employed negro teacher trainers for the training of teachers, who also visit the divisions of vocational agriculture in the schools for negroes and assist in improving the teaching staff.

Twenty years after the promulgation of Smith-Hughes Act, the position of secondary instruction is as follows: in the United States there are over 4,390 teachers giving instruction in agriculture in 4,260 schools; over 153,000 students are attending day classes and over 76,000 adults are taking evening courses.

Secondary agricultural instruction in U. S A. is controlled by the Division of Vocational Education, Office of Education, Department of the Interior, Washington.

Elementary agricultural education.

Agricultural instruction in the U. S. A. elementary schools as it is at present organized, began towards the end of the last century. From the beginning of this movement in favour of agricultural education, the desire to establish elementary instruction had been repeatedly expressed. The establishment of garden schools and the encouragement of nature studies may be considered as being the first attempts at an elementary instruction in agriculture, these were very popular thirty years ago and their principle is still kept under varying forms in the present schools.

The considerable interest caused by the expansion of agricultural education in the colleges towards 1900 must have brought about in consequence a similar evolution in the elementary schools. The rural population requested that laws should be passed by the States authorizing the introduction of agricultural instruction in the elementary schools.

This movement attracted the attention of the Association of Agricultural Colleges which at its meeting in 1903 at Weshingon, commissioned their committee to study this question. In the meantime, a considerable number of States had established courses in elementary agriculture in the public schools.

The general introduction of agricultural education in the ordinary public schools met with considerable difficulty: this was due to the conservative spirit or apathy of some States, the insufficient training of the teachers, the short duration of the school terms, etc.

The committee then arranged a system of elementary agricultural instruction based on nature studies, and in 1905, in a report presented to the Association for national education, requested that agriculture should be taught during the three final years of the common school. Meanwhile laws sanctioning or supporting agricultural instruction in the rural schools were passed by the Legislative Assembly of the following States Alabama, Florida, Georgia, Illinois, Louisiana, Maryland, Missouri, North Carolina, and Wisconsin. From 1905 to 1910, 13 States promulgated similar laws, and in 1915, agricultural instruction in the rural elementary schools was made compulsory in 22 States.

Parallel to this instruction in the elementary public schools, a similar movement arose in the special or private schools.

The present state of agricultural education in the United States is as follows

Twenty-eight States have prescribed by legislation the instruction of elementary agriculture in rural schools; a few other States have promulgated special Acts regarding the improvement of rural schools. It appears, however, that in the majority of the States, there is still an insufficiency of well-trained teachers.

THE NEGRO LAND-GRANT COLLEGES

The number of land-grant colleges for negroes are considerable; there are 17 of these colleges which are divided among 15 southern States, in Delaware and West Virginia. They were established by virtue of the 1st and 2nd Morrill Act in the same way as the colleges for white people. Their main purpose is to give young negroes a higher theoretical and practical education in Agriculture, Mechanical Arts, Home Economics, English, Mathematics, Physics, Natural Sciences and Economics.

These colleges receive their quota of the Federal subsidies granted by the National Government for the maintenance of the land-grant colleges in the different States.

The first Morrill Act did not include any dispositions regarding difference in race, and in most cases, the Federal subsidies have been employed solely in the establishment of institutions for white people. Only four States reserved part of the Federal grants for the upkeep of land-grant colleges for negroes.

The first land-grant college of this kind was the Alcorn Agricultural and Mechanical College founded by the Mississippi State in 1871. In 1872, Virginia State promoted a private school for negroes, the Hampton Normal and Agricultural Institute to the position of land-grant college. South Carolina was the third State to follow this example. However, it was not until 1890 through the second Morrill Act, that an impetus was given to land-grant colleges for negroes.

By this Act, the Federal Government assured the establishment of land-grant colleges for negroes in the southern States; 4 of these States accepted in 1890, 8 in 1891, 1 in 1892, 2 in 1893, 1 in 1896 and 1 in 1899.

The system adopted by the different States varied with regard to the new institutions and allocation of part of the annual subsidies granted by the Gederal Government.

The following together with the date of their establishment are the different land-grant colleges for negroes·—

State Agricultural and Mechanical Institute, Normal, Alaska (1875);
Agricultural, Mechanical and Normal College, Pine Bluff, Ark (1872);
State College for Colored Students, Dover, Del (1891);
Florida Agricultural and Mechanical College, Tallahassee, Florida (1887);
Georgia State Industrial College, Industrial College, Georgia (1890);
Kentucky State Industrial College, Frankfort (1886),
Southern University and Agricultural and Mechanical College, Baton Rouge, Louisiana (1880);
Princess Anne Academy, Eastern Branch, University of Maryland, Princess Anne (1886);
Alcorn Agricultural and Mechanical College, Alcorn, Miss. (1871),
Lincoln University, Jefferson City, Mo. (1866);
Agricultural and Technical College of North Carolina, Greensboro (1891);
Colored Agricultural and Normal University, Langston, Okla (1897);
State Agricultural and Mechanical College, Orangeburg, S C (1896),
Tennessee Agriculural and Industrial State Teachers' College, Nashville (1912);
Prairie View State Normal and Industrial College, Prairie View, Tex (1891);
Virginia State College for Negroes, Ettrick (1920),
West Virginia State College, Institute (1890).

The extention of negro land-grant colleges was considerably influenced by private institutions for higher education for negroes established in the southern States. During the period which preceded and followed the Civil War, 18 of these colleges were organized by private enterprises of a philanthropic character; from 1870 to 1890, negro ecclesiastical organizations founded 13 colleges in different States; the establishment of other colleges also followed.

The system of management in the negro land-grant colleges is an important factor in their progress. Among these 17 institutions, there are four different methods of control, which can be classified as follows:

Two colleges managed by State Boards of Control, charged with the supervision of all the public institutions of higher education in the interior of the State;

Three colleges controlled by the State Board of Education;

Two colleges directed by Boards of Trustees, controlling other public institution in the State;

Ten colleges controlled by their own administrative Boards.

The total number of the members of control Boards in the 17 colleges amounts to 128.

A characteristic of these colleges is that the proportion of women students is very high; in some colleges, the number of women students exceeds that of the men.

The majority of the colleges for negroes have extensive grounds at their disposal, the total area of lands belonging to the 17 colleges amounts to 5,638 acres of which 2,735 are reserved for farms.

Organization methods in colleges for negroes.

There are three main types of colleges :

(*a*) The college for junior students with a two-years'course. The following institutions come under this group· the Alabama Agricultural and Mechanical Institute, the State College for negro students in Delaware, the Princess Anne Academy, Maryland. The Florida Agricultural and Mechanical College, and the Kentucky State Industrial College also give a " junior " course.

(*b*) Colleges for senior students holding a four-years course; the following institutions are of this type: the Agricultural, Mechanical and Normal College of Arkansas, the Florida Agricultural and Mechanical College, Georgia State Industrial College, Kentucky State Industrial College, Lousiana agricultural and Mechanical College, Mississippi Agricultural and Mechanical College, North Carolina Technical and Agricultural College, Oklahoma Agricultural and Normal University, South Carolina Agricultural and Mechanical College, Texas Industrial and Normal College. Virginia College for negroes, West Virginia State College.

(*c*) Institutions for teachers training. The Lincoln University, Missouri, and the Tennessee Agricultural and industrial College specialize in the training of teachers.

SECONDARY AND ELEMENTARY INSTRUCTION IN THE NEGROES' COLLEGES

The Land-grant colleges for negroes are engaged chiefly in the development of secondary and elementary instruction. These institutions, with one exception, all maintain secondary schools, and 14 out of 17 include elementary schools. The secondary instruction given in the land-grant colleges for negroes is mainly practical and vocational.

Student organizations in the Universities and Land-Grant colleges in U S. A.

During the last century, the attitude of the faculty members and the administrative staff in practically all colleges was that of non-intervention. This atitude has undergone a rapid change during the last twenty years; and at present faculty members and the administrative staff take an active interest in the organizations of which the students form part. In the U. S. A. land-grant colleges, these student organizations number 1,300; these comprise clubs or varying types; the meetings of these clubs are held infrequently, not more than once every, three or even six months. In many universities, there are departmental and professionnal clubs such as Biology, Geology, Chemistry, Engineering Clubs etc., that is, a club for each college division.

There also exists another type of organization for men, the lodges, the masonic order disposes of lodges established inside the colleges; it controls a section for young students known under the name of " De Molay " which is a preparatory organization for youths not yet having attained their majority.

In the Universities having fraternities another type of organization is very common: the fraternity organizations established solely for social purposes.

Honorary organizations. Two main types of organizations known as honorary are to be found in the land-grant colleges, firstly, the departmental or scholastic honorary groups, whose names are legion (Phi Beta Kappa, Sigma Xi, Tau Beta Pi, the Order of the Coif, Pi Lambda Theta, Lambda Alpha Xi, etc.) and the " honor " societies, whose object is to improve the general wellfaie of the University.

Student Government: Towards the beginning of the 20th century the students started to organize themselves into groups which partly undertook the management of their social life, this movement made rapid progress firstly among the students of the young women's colleges in the Universities, the first step was made by the establishment of groups nominated "The Women's League". The first women's league was primarily founded with the object of ensuring improved accomodation conditions for the students and also a consistent social life.

Student government began in those colleges where the students were boarders.

These organizations are now in operation in all the land-grant colleges, where there are to be found either associations for both men and women students, as the " All College Student Council ", or else separate organizations. However, even in colleges, where mixed associations are established, parallel to these are to be found " Women's Students Government Boards ", which specifically control the way of living and social activities of the women students. The two organizations, thus operate side by side. The women's student government associations now hold a national biennal council.

Student Unions.

Among the auxiliary organizations of the present day college, further mention should be made of student unions, whose object is to promote social activities among the students, to strengthen social contacts and provide quarters for social entertainments. These unions, however, have only been established in a few colleges (12 in 1928); 8 have both men and women members, 2 for men only, and 2 solely for women. The system of management of these different unions varies very considerable; three unions are directed by a council of directors composed of Faculty members and students; another is managed by a committee composed of a president, a vice-president and a secretary treasurer, elected by the students.

The necessary funds for the construction of the club buildings have practically always been collected by public subscription; the annual expenditure is met by various means. generally by college contributions and grants.

Bibliography:—

This study has been compiled with the assistance of documentary information supplied direct by the United States Department of the Interior, Office of Education, Washington The following publications were also consulted

Survey of Land-grant Colleges and Universities - United States Department of the Interior, Office of Education bulletin (1930), No. 9, Vol. 1 & 2.

A History of Agricultural Education in the United States – ALFRED CHARLES TRUE, Washington, 1929

Agricultural Education in the United States WHITNEY H. SHEPARDSON, New York, 1929

Curriculum Making in Agricultural Colleges - JOHN TAYLOR WHEELER, Athens, Georgia, 1932.

Boletín del Ministerio de Agricultura - Santiago de Chile, Julio-Agosto-Septiembre 1935

Professional Forestry Schools Report CHAPMAN, Washington, 1935

Forest Education. HENRY S GRAVE and CEDRIC H. GUISE, New Haven, Yale University Press, 1932

THE XIth INTERNATIONAL DAIRY CONGRESS (BERLIN, 22-29 AUGUST, 1937)

During the past 34 years, International Dairy Congresses have been held in various countries. These congresses are arranged by the International Dairy Federation, a world organization which assembles the representatives of the majority of the nations, and continually strives to promote the expansion and progress of the dairying industry throughout the world. The basis of the organization of the Federation is constituted by the national Committees, which at present number 27, representing 22 European countries and five important countries outside Europe. The most important and best known branch of activity of the Federation is certainly that dealing with the organization of the International Dairy Congresses which are held so successfully in the different ffiliated countries. The National Committee of the countries where the congresses take place are responsible for their organization, although for every congress the Federation remains in close contact with the organizing bureau.

The World Dairy Congress at Berlin is the XIth of the series of the great international Congresses held under the auspices of the International Dairy Federation, since its establishement. The present Congres was organized under the eminent direction of H. E. Walther Darré, Leader of the Reich Peasants, and Minister of Agriculture and Food Supply, his able Deputy, Reischsobermann Behrens, Acting President of the Congress and Herr W. Clauss, Secretary General.

Germany, being responsible for the organization of the XIth International Dairy Congress, made every endeavour to present her guests with a programme as complete and interesting as possible from the technical standpoint. The response was very considerable; 53 countries were represented at the Congress and there were 3,770 menbers present. The representatives of the following 53 countries wer present at the XIth International Dairy Congress l'Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Ceylon, Chile, Colombia, Costa Rica, Cuba, Czechoslovakia, Danzig, Denmark, Egypt, Estonia, Finland, France, Germany, Great Britain, Greece, Guatemala, Hungary, India, Iran, Irish Free State, Iceland, Italy, Japan, Latvia, Lithuania, Luxemburgo, Malta, Mexico New Zealand, Nicaragua, Norway, Panama, Peru, Poland, Portugal, Rumania, Salvador, Spain, Sweden, Switzerland, the Netherlands, Union of South Africa, United States of America, Uruguay, Venezuela, and Yugoslavia.

An important series of Exhibitions, dealing with different aspects of dairying, organized by the Ministry of Agriculture and Food Supply completed the XIth International Dairy Congress. These included the *International Industrial Exhibition; International Exhibition of Dairy Products, Exhibition of the Nations; Exhibition,* entitled «*Milk in the Art and Culture of the People*»; *International testing for the quality of butter and cheese*

A special film on the German dairying industry was shown, and numerous visits and inspection tours were arranged with the object of demonstrating to members the scientific and technical institutions, industrial establishments and the dairying and cheese industries in Germany. A number of most successful receptions completed the programme

As regard the procedings of the Congress, over 450 scientific and technical reports dealing with 25 specific questions grouped under 4 sections and 26 genera reports were presented, representing a mass of documentation which in itself will constitute a kind of up-to-date encyclopedia of Dairy work to day. Three general reports were discussed at the International Dairy Federation by special international Commissions.

The four sections dealt with:—

(1) Milk production, dairying in tropical countries,

(2) Manipulation and conversion of milk, improvement in quality;

(3) Legislation measures adopted in the different countries The sale of milk and its derivatives. Modern propaganda. Scientific and practical instruction in dairying work.

(4) Dairy machinery industry, dairy construction, scientific methods as applied to the dairying industry, apparatus, utensils, means of transport.

A brief summary of the proceedings of the different sections and tge complete text of the decisions, resolutions and recommendations oj the XIth International Dairy Congress adopted are given in the follwing pages.

1st SECTION

MILK PRODUCTION, DAIRYING IN TROPICAL COUNTRIES.

(1) The role of dairying competitions considered from the point of view of breeding and nutrition;

(2) The scientific feeding of dairy cattle by means of forages grown on the farm;

(3) The importance of hygiene in the stall as regards economic yield.

(4) (*a*) The spread, prevention and abolition of contagious abortion.
  (*b*) The control of tuberculosis, mastitis, and streptococcic mastitis.

(5) Dairying in tropical countries.

The role of dairy competitions considered from the point of view of breeding and nutrition (1)

The monetary value of dairy production for the whole world far exceeds the returns obtained from other branches of production. As the total world production may be estimated at 60 million gold marks, the economic importance of milk is clearly seen, and the particular importance of the interest with which is attached to this food in all countries may be well understood Because of the paramount importance of milk, and its very considerable value, naturally special attention is paid to production conditions, and every effort made to solve this problem, which put in the from of a question may be thus summed up:

" What measures should be taken so as largely to increase and better to organize this branch of production on an economic basis ", the individual conditions of the different countries naturally affect very considerably the reply whith this question. And if the ultimate aim may have come to be generally expressed by the password " More milk ", other means of attaining this object should not necessarily be left out of consideration. There is, however, one measure which is of importance to both the breeder of dairy cattle and to the dealer in milk, that is Milk recording.

Because of the importance of Milk recording

I. — *The Congress resolves that the International Institute of Agriculture, Rome, shall submit at every International Dairy Congress a brief review of the position of Milk recording in all countries.*

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(1) General report by Dr BRUMMENBAUM and Dr WEISS at Berlin, Germany, and the Reporter, Mr. James MACKINTOSH, Reading University, England.

II. — *It considers an international agreement desirable under which the maximum interval between two inspections would be 28 days. The day for inspection should be established as far as possible during this interval.*

III. — *It recommends that in order to obtain the best possible results from the data furnished by Milk recording regarding the improvement of dairy cattle breeding, the data should be of uniform character. It is hoped in this way to obtain animals having the best hereditary aptitudes. This resolution confirms the views expressed by the Congress at Rome.*

IV. — *In the interests of Dairy Control, it is advisable to discuss the results obtained in the different countries from combined premiums granted for build and yield, all the more so that in the international agreements for the standardization of the Herdbook, certain indications in this respect would also represent an internationally recognized concordance of view.*

V. — *In order to judge the value of the breeding, not only must the yearly returns be taken into consideration, but also as a matter of practical interest, of the yields obtained throughout the life of the animal (duration of productive period) as well as other factors,* inter alia, *regarding health, etc.*

Scientic feeding of dairy cattle by means of forages produced on the farm (1) and the preservation of fodders by means of acids (2).

The problem of the rational feeding of dairy cattle by means of forages produced on the farm is closely connected with that of dairy control, and enters the same economic and political field, in spite of its strictly technical basis To obtain an increased production in fodder crops, it is necessary, besides the intensification of yields resultant from the area sown with forage plants as a main product, that intermediary crops should be increasingly used. In cattle feeding based on an extensive cultivation of forages, the harvesting and storage of the fodder crops require special attention so as to prevent loss.

The preservation of forages by the addition of mineral acids is an excellent means of obtaining cattle feed entirely through farm production.

The technique of forage supply, not only in stall feeding but also in grazing requires considerable improvement.

In order to be able to give the cattle food produced if possible on the farm itself, which should have a maximum digestibility, an extensive knowledge of the nutritive value of the forage plants and the manner in which the cows utilize the same for milk production is necessary. In this respect, the following resolution was taken:—

VI. — *The application in practice of the scientific discoveries made in the field of forage nutrition is a question of primary importance from the general point of view. For the improvement of dairy control in the matter of forage nutrition*

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(1) By the General Reporter, Prof. Bunger, Kiel, Germany.

(2) By the Reporter, Prof. Dr. Joel Axelsson, Upsala, Sweden

and for the practical realization of forage nutrition with regard to yield, it is very necessary to obtain methods and standards sufficiently safe and simple for the peasant to understand. These standards may be adapted to local conditions. It is also proposed to make this question one of the principal subjects for discussion at the next International Dairy Congress and in consequence to undertake the necessary work of preparation.

The importance of hygiene in the stall as regards economic yield (1).

The place where production occurs, that is to say, the stall, is of as high importance as production itself. In fact, in temperate zones, milch cows remain for the greater part of the year in the stall, and it may be said that there is no food obtained under such unfavourable conditions as milk. It is sufficient to consider that the udder in its natural position of repose rests on the stable floor, and that consequently, even if clean stable litter is provided there is the continual risk of contamination. The hygiene of the stall in all its aspects, encouraged by the increase in the value of quality milk, will also favourably affect the quality of dairy products. The health and productivity of the animals will largely recompense the care given them as also the more careful attention of the staff, a factor which costs nothing but which always leads to success from the economic point of view.

The question of the size of the stabling quarters for cows as well as that of ventilation, has not yet been satisfactorily solved, even in the construction of the most up-to-date stables. In this respect, the following recommendation was formulated:

VII. — *It is proposed to establish a special commission charged with the realization of a scheme of research and organization regarding the maintenance of stable cattle.*

The extension, prevention and abolition of contagious abortion (Brucellosis) (2).

In spite of every endeavour made up-to-date, it has not yet been possible to obtain a radical means of preventing the premature delivery of calves. The disease develops an epidemic character especially among herds of high value. Vaccination by means of killed bacteria does not necessarily render the cattle thus treated immune. Vaccination with living cultures is absolutely prohibited in certain countries, such as Germany and Hungary, as to-date no definite results have been obtained by this method, which to some degree constitutes a risk of still greater infection. Moreover, because of the system of vaccination. the owners of herds of cattle tend to believe that their stock is protected from danger of infection and consequently neglect the most important hygienic control measures. According to general reports, it appears that this epidemic affects more or less 10 % of the livestock in the different countries. The regions where an active trade in cattle and as a rule large herds predominate show the highest percentage. The economic losses caused by this diseases are not due chiefly to the loss of the calves, but rather to the' subsequent sterility and the consequences on milk yield. Account should also be taken of the danger to human beings in the consumption of infected milk. At present, there are certain methods available for definitely ascertaining the presence of the disease, but they are not sufficiently complete to prevent erroneous deductions.

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(1) By the General Reporter, Prof. Dr. Staffe, Vienna, Austria.

(2) By the General Reporter, Mr. G. H. Wooldridge, Royal Veterinary College London, England.

The control of tuberculosis, mastitis and streptococcus mastits (1).

Besides the risk to human welfare, due the consumption of milk which is not absolutely safe and of the products derived therefrom, bovine tuberculosis in Germany causes a loss of 60 million RM per annum, both as regards meat and fat production and the yield in work output and the productivity of breeding. In Germany, the damage caused by contagious abortion is estimated at 250 million RM; the infection due to *Streptococcus mastitis* in Germany occasions the loss of 200 million RM. In considering these figures, it is understood why science endeavours by every possible means to ascertain the cause of these losses in order to check them at the beginning. Bovine tuberculosis adversely affects milk production as in many cases the milk is harmful to health and also because production declines. The danger of infection chiefly affects children in the early years of infancy, and is the result of the consumption of liquid milk or insufciently pasteurized milk. The milk of cows attacked by *Streptococcus mastitis* is not directly harmful to health as it cannot be used in liquid form, but it may be dangerous industrially if it has not been subjected to extensive modifications. In the control of this disease, every possible means for the prevention of its extension should be adopted, isolation, separate milking of the animals affected, disinfection, etc. Besides these hygienic measures, methods for the cure of the infected udder are also advocated such as antistreptococcic vaccinations in order to prevent the spreading of *Streptococcus mastitis*. In respect of the development and evolution of contagious diseases, besides the causes of infection, account should also be taken of the stabling and chiefly the upkeep of the animals, fodder and maintenance care which are of considerable importance Dark and badly ventilated stables having an incorrect system for the draining of liquid manure, unsuitable forage, as well as insufficient care influence the development of the disease by aggravating it so considerably, that it is of primary importance to remedy these defects. Again an appeal is made to science to discover effective control methods in order to reduce present losses, if for the moment, it is not possible to eliminate them entirely.

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(1) By the General Reporter, Ministerial Director Dr MUSSLMEIFR, Berlin, Germany.

In this respect, the members of the Congress have formulated the following resolution:—

Taking into consideration that:

VIII. — *Chronic bovine contagious diseases (brucellosis, tuberculosis, streptococcus mastitis) cause, independently of the heavy loss to cattle breeding (abortion, renewal of the heat period, sterility, mortality in calves), meat and fat production, and in part also to the health of man (brucellosis and tuberculosis), an appreciable reduction in milk production. These consequences necessitate the premature elimination of many of our best milch cows.*

The Congress also considers that the effective control of tuberculosis, brucellosis, and bovine mastitis is now of primary necessity. It considers that the measures proposed for this purpose by the general Reporters satisfactorily fulfil requirements and recommends their application to the Governments of the different countries.

Dairying in tropical countries (1).

In respect of tropical dairying, the development of the dairying industry in tropical zones is all the more important in that this industry is only in the preliminary stage because of the unsuitable environment. In spite of this factor, an ever-increasing interest in this industry is noted in a whole series of tropical countries which endeavour to develop this branch of agriculture; this development, especially in China and Japan, has extended very considerably. In the towns with an European colony, there are already many dairy establishments fairly well arranged. In India, the agricultural institutes are making every endeavour to stimulate cattle breeding as well as the dairy industry. The necessity of the supply of wholesome and hygienic milk and milk products in hot countries becomes increasingly evident in respect of the nutrition of the native and European populations.

In this respect, the Congress considering:—

(a) *the considerable importance of the dairying industry in hot regions with regard to the improvement of the native populations and the supply of the whole world with milk products;*

(b) *the necessity, still more important here than in temperate zones, of the effective control of cattle diseases with a view to obtaining herds of healthy cows having high yields;*

(c) *the primary importance of supplying wholesome and hygienic milk and milk products to the large cities in tropical and subtropical regions, chiefly those having a numerous white population.*

Recommends that:—

(1) *the International Dairy Federation shall make every endeavour in the development of this section in order to promote and stimulate an interest in all activities regarding the dairying industry in hot regions;*

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(1) By the General Reporter, M. E. HEGH, Uccle-Bruxelles, Belgium.

(2) *all tropical countries interested in this question, and especially those which in recent years have made considerable progress in dairying, shall participate in the work of the Federation;*

(3) *the International Commission for the Study and Diffusion of the Methods for the Hygienic Production of Milk, of the International Dairy Federation shall be requested to study from an international point of view, all special problems dealing with the supply of wholesome and hygienic milk and milk products in the large cities of tropical and subtropical regions;*

(4) *in view of the general considerable importance, particularly also in respect of the control of contagious diseases, a special section shall be established for tropical dairying, as was previously the case on the occasion of each Congress.*

IInd Section

TREATMENT AND TRANSFORMATION OF MILK IMPROVEMENT IN QUALITY.

(1) Defective milk considered from the practical and scientific point of view.

(2) *a, b,* The aroma of butter, storage qualities of butter.

(3) The pasteurization of cheese milk, considered in respect of the different varieties of cheese.

(4) *a, b* : The utilisation of surplus milk considered from the point of view of the preparation of preserved milk ; the utilisation of skim milk, buttermilk, and whey.

(5) Improvement in the quality of milk and milk products:

(*a*) State methods of organization and general measures for the control of milk and milk products.

(*b*) Present day research methods.

Defective milk considered from the practical and scientific point of view (1).

The second section dealing with the manipulation and transformation of milk and the improvement in quality, first considers defective milk from the practical and scientific point of view. A distinction should be made between milk having undergone modifications of a physiological order, that is changes occurring during milking or immediately after, modifications due to disorders in secretion and milk having become altered after milking, due to some external factor. In respect of milk which undergones modifications of a physiological order, the greater part of these changes are due to disorders in secretion, especially during the winter. Naturally, the state of the blood, playing such an important part in the formation of milk which undergone changes in its composition also brings about a variation in the composition of the milk. The milk which at first appears normal, but on examination is found to be defective, is not suitable for cheese making. The cheese-maker says that the milk does not lend itself to fermentation. Its special behaviour towards microrganisms is considered as a disgenesis of the milk. It seems that the nutrition of the cattle plays a preponderant part in the production of dísgenetic milk. The modifications of milk after milking, that is the defects of the milk caused by infection during or after milking are very numerous. This infection is chiefly of a bacteriological order, but contamination due to metals is also of wide occurrence.

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(1) By the General Reporter, Mr. Josef Csiszar, Magyarovar, Hungary.

The aroma of butter (1).

From the research work regarding the question of the aroma of butter, it results that the principal aromaticizing element in butter is unquestionably diacetyl. The formation of the aroma is decidedly due to bacteria. According to the unanimous indications of all the papers presented, diacetyl is obtained from bacteria fermenting citric acid; these are *Streptococcus citrovorus* and *Str. paracitrovorus* (also known as *Metacoccus cremorus*) and according to Matuszeski, by *Streptococcus diacetylactis*, in the presence of air and oxygen. There is no doubt that the formation of diacetyl is on an equal basis with that of acetoin.

During churning, the diacetyl and acetoin content continually increase and is found to be appreciably higher in buttermilk than in cream. In butter itself only a relatively small proportion occurs, that is, approwimately $1/_{t}$ of the diacetyl content and 1/13 to 1/16 of the acetoin content contained in the cream for churning. These substances are contained in the water of the butter. Owing to the considerable differences shown by the methods adopted in the study of diacetyl and acetoin content, it is very difficult to compare the results obtained up-to-date. In consequence of the importance of the question of butter aroma, a standardized rapid and scientific method should be adopted.

Storage qualities of butter (2).

In respect of the storage qualities of butter, the influence of the different fodders on the quality of the butter is of considerable importance and dependes on many factors, including: chemical, bacteriological and enzymatic action Generally, these are three concurrent causes. Special study was given to the defect of fishy taste in butter; this defect is caused by the formation of small quantities of trimethylamine in the lecithin of the butter under the simultaneous influence of hydrolysis and oxydization. The problem of the acidulation of the cream and other questions were also taken into consideration, as that of melted butter obtained by heat, which has been on sale for the last two and a half years in Switzerland, and also the packing or butter, a matter of considerable importance as regards its keeping qualities.

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(1) By the General Reporter, Prof MOHR, Kiel, Germany.

(2) By the General Reporter, JOHANNES JENSEN, Aabeneraa, Denmark, and Reporter Dr. W. RITTER, Berne-Liebefeld, Switzerland.

The pasteurization of cheese milk considered in respect of the differentes varieties of cheese (1).

With regard to cheese, the pasteurization of cheese milk has been considered from the point of view of the different varieties of cheese, a question, which was also previously raised at the Xth Congress. An ever increasing interest in the pasteurization of milk for cheese-making is noted. It has been generally ascertained that pasteurization has been adopted in the cheese-making establishments more for economic, than, as would be expected, for hygienic reasons. For cheeses of natural acidity, pasteurization may be freely advocated, and according to the seasons and fodder supply, it is of primary necessity. Cheeses made with rennet (except soft cheeses) are more easily prepared with pasteurized milk. With regard to semi-soft cheeses the advantages and disadvantages appear to be equally balanced. The greatest difficulties occur in the preparation of hard cheeses, especially in the case of Emmenthal cheese, while for Cheddar cheese conditions are slightly different.

The utilisation of surplus milk considered from the point of view of the preparation of preserved milk (2).

The utilization of surplus milk for the preparation of preserved milk is subordinate to the supply and demand of each product, the cost of the raw material, costs of manufacture and sales possibilities.

It will also be necessary to consider the influence which the preparation and sale of these products may have on the production and marketing of the principal product of the industry. The natural and fundamental cause of occasional, transient, periodical and seasonal surplus milk is due to milk production exceeding the market demand and it is impossible to sell all this product in its natural state The question of surplus milk in establishments selling liquid milk is in a certain sense still more important than for butter-making, cheese-making, and ice-cream establishments To the inevitable variations in demand should be added those, also inevitable, of the producer. The utilization of surplus milk has been considered from various aspects in respect of the transformation of condensed milk in tins, condensed milk in block, in milk powder, in sweet cream, butter and secondary products, cheese, various products for immediate consumption, and alimentary casein.

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(1) By the General Reporter, Prof Karl J DEMETER, Weihenstephen, Germany.

(2) By the General Reporter, C F. HUNZIKER, Blue Valley Creamery Co , Chicago Illinois, U. S. A.

The utilization of skim milk, buttermilk, and whey (1).

The utilization of by-products does not present insuperable difficulties from the technical aspect, but is more or less a question of cost as many of these by-products have a very considerable proportion of water and a minimum of solid material. No country, however, with a well-established dairy industry wishes to relinquish the extensive utilization of residuary dairy products. Skimm milk is employed in the preparation of white cheese, skim cheese; it is also adopted in the natural state for household use, it is utilized either condensed or dried; experiments are in progress on its utilization as a food rich in the valuable biological proteins of skim milk (aminogens and albugens); nutritive casein, bread improved with lactic albumin. However, at present, in spite of the efforts made in some countries to utilize skim milk as a food for human use and to withdraw supplies from the producer, the greater part for use in industry, most of the skim milk is employed as a cattle feed in countries having an extensive dairying industry.

The utilization of whey is extremly difficult owing to its high water content (over 90 per cent.) and the difficulties involved in transport and its tendency to become rapidly and intensely acid.

Improvement in quality of milk and milk products: State measures of organization and general measures for the control of milk products (2).

The State measures of organization and the general measures for the control of milk and milk products comprise —

(1) measures for the improvement of milk at the centre of production control of consignment and continual inspection of dairies,

(2) measures of organization for the standardization and improvement of milk products,

(3) measures intended to guarantee the composition and quality of milk and milk products by legal provisions and police regulations

By simple means and progressive instruction, it is possible for owners of cattle, milkers, and cowherds, to contribute considerably as individuals to the production of pure milk. The object in taking such measures either by private individuals, associated companies or state organizations, is to obtain successful results of a general character. Direct education and the expectation of profit will always lead to a more rapid and complete success than purely repressive measures. The control of milk and of the stables will also be realized solely in the interest of a progressive improved health conditions of the dairy live-stock and in the interest of a more general production of pure milk, which will be the natural sequence of these conditions apart from the question of pasteurized milk.

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(1) By the General Reporter, Prof Dr KIEFERLE, German Lactology Institute, Weihenstephan, Germany, and the Reporter, Dr W LIEBSCHER, Federal Chemical Agricultural Experiment Institute, Vienna, Austria.

(2) By Dr G KOESTLER, Co reporter, Berne-Liebefeld, (Switzerland), Mr. W. CLAUSS, " Ing. agronome " Berlin, Germany, General Reporter, and Co-reporter Mr. Homén, Helsingfors, Finland.

The payment of milk according to quality is still a problem of which the recent consequences have not yet been studied, that is the direct comparison of milk with its by-products.

In every country, more or less fixed standards have been established for the methods of organization for milk and milk products. This system is of special advantage for butter of which the standardization is perhaps more advanced than in the case of other dairy products on the market.

Inspection and regular control methods are considered the most suitable measures for the improvement in quality and for the production of dairy products.

In consequence of the measures intended to guarantee the composition and quality of the milk and milk products, drawn up according to legal provisions and police regulations, it is necessary to continue research work by identical methods. It is certain that this standardization of methods of testing constitutes a very important initiative. The methods of testing for milk are not of the same importance in world commerce as for example the analyses of cheese and milk powder, but the proposal of standardization, seems to be well justified, taking into consideration that the quality of the milk from the hygienic point of view is also a factor of primary importance in the wholesale trade, as the quality of the milk considerably affects the transformation of this product. In order that differences may not arise in the various countries, the question should be raised whether certain international rules could not be established for the purpose of the general standardization of the most important methods of analysis.

Present day methods of research (1).

The efforts made with a view to improving the quality of milk and milk products have naturally led to a continual improvement in the technique of research work. On the one hand, it was a question of obtaining for practical use rapid methods affording sufficient accuracy for mass research, and on the other, to facilitate the application of micrometric methods to scientific research. The object of all these studies as adapted to practical requirements is to lead to an improvement of the products on the basis of the results obtained and the elimination of the defects noted. At the same time, it has been ascertained that it is the general desire to obtain the standardization of research methods in order to render possible the establishment of standardizeed values.

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(1) By the General Reporter, Prof. Dr SCHWARZ, Kiel, Germany

In respect of the treatment and transformation of milk, as well as improvement in quality:—

I. — *The Congress recommends that a Commission for the standardization of bacteriological methods of analysis for milk and milk products shall be established.*

The Congress recommends that a Commissione shall be formed for the purpose of proposing standard methods for the chemical and physical testing of milk and milk products, chiefly:

(a) *for rapid and quantitative tests*]
(b) *for scientific studies.*

II. — *The measures taken on a uniform basis in all countries having a well-established dairy industry, for the improvement of quality and for the production of standard dairy products, show that regular examination and control methods may be considered as one of the principal methods whereby the desired result may be obtained.*

In order that all the persons concerned may profit from the observations regularly made, a uniform appreciation and opinion on the dairy products as obtained in consequence of the control methods carried out in the different countries would be of the greatest value.

It would therefore be desirable to proceed to an exchange of experiences obtained, using a fixed basis, coming within the scope of the plan of operation of the International Dairy Federation, which should establish a special research committee for this purpose.

IIIrd SECTION.

LEGISLATIVE MEASURES, SALE OF MILK AND ITS DERIVATIVES PROPAGANDA, MARKETING, DAIRY INSTRUCTION.

(1) International system of regulation in respect of the preparation and trade in processed cheeses and dried milk. Standardization of the methods of testing these products·

(*a*) processed cheeses;
(*b*) dried milk.

(2) The sale of milk and dairy products and the establishment of district prices acceptable to producters, middlemen, and consumers (market regulation).

(3) Measures to be taken in the different countries to secure production of an absolutely pure milk.

(4) The different dairy organizations (privately-owned establishments, cooperative associations), their advantages and defects.

(5) The organization of practical and scientific instruction and vocational training in dairy schools.

(6) The nutritive value of milk and its derivatives and the measures of instruction and propaganda relating to the same.

International system of regulation of the preparation of and the trade in processed cheeses and dried milk. Standardization of the methods of testing these products (1).

(a) *The international system of regulation of the preparation of and trade in processed cheeses. Standardization of the methods of testing these products,* drawn up by the General Reporter Dr. A. J. SWAWING, president of the International Committee for cheeses.

Subsequent to the world inquiry and the various meetings held at Rome (1934). Berne (1935), the Hague (1936) and Berlin (1936 and 1937), with a view to solving the many problems regarding processed cheese, such as the definition of the term, designation of the product, name of place of origin, water content, fat content, indication of net weight, prohibition of the preparation and trade of processed cheeses, addition of foreign matter, the proceedings of this Commission have resulted in the following recommendations

I. — PROCESSED CHEESE.

Thesis *A* — *Definition.*

" Processed cheese is understood to be a product which is obtained by heating cheese together with certain emulsifying solutions ".

Thesis *B.* — *Prohibition during manufacturing.*

" In the preparation process of processed cheese, the addition of extraneous fats and oils should be strictly prohibited ".

Thesis *C.* — *Designation of the product*

" There should be one form only of designation for processed cheese in all countries ".

Thesis *D.* — *Designation of place of origin.*

" If a manufacturer wishes to sell processed cheese under a particular designation of origin, he should so originating only cheese for manufacturing purposes. An exception is made in the case of Gruvère and Emmenthal cheeses which will considered as being cheese having the same place of origin.

Any other mixture of cheeses may only be labelled as processed cheese without any guarantee of origin ".

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(1) These Reports of the XIth International Dairy Congress were prepared by the special Commissions of the International Dairy Federation.

Thesis *E*. — *Fat content.*

« *It is necessary to state on the wrappers of processed cheese, the fat content contained in the dry matter* ».

Thesis *F*. — *Indication of the net weight.*

" *The net weight should be stated on all consignments of processed cheese* ".

b) *the international system of regulation in the preparation of and trade in dried milk, standardization of the methods of testing these products*, drawn up by the General Reporter, Dr. F. E. POSTUMA, the Hague, President of the International Committee for condensed and dried milk.

Following on the world inquiry and the various meetings of the International Commission for dried milk, many proposals by different Reporters were rejected, while other problems were passed on for detailed consideration. Five definite proposals were thus presented to the XIth international Dairy Congress. These included the following theses.

II. — DRIED MILK.

Thesis *A*. — *Designation of powdered milk.*

It is desirable that only one designation should be applied to milk powder in every language. This designation may be formulated either as " poudre de lait " (Milchpulver, latte in polvere), or as " lait desséché " (dried milk).

Thesis *B*. — *Water content*

The water content of all these categories of milk powders should not exceed 6 per cent.

Thesis *C*. — *Fat content.*

In connexion with the statment " milk powder ", the fat content may be indicated on the wrapper The fat should be obtained entirely from the milk. If the fat content is not stated, 24 per cent. of milk fat (by weight) may be considered as the minimum content.

Thesis *D*. — *Statement of contents on the outside packing.*

In the case of milk powders intended for industrial use (chocolate factories, confectioners, etc.), the net weight should be stated on the packing and if the product is prepared from skim milk, the fat content should also be indicated.

For milk powders intended for sale in small parcels (metal boxes, glass containers, etc.) the following statements should be made in distinctive lettering in the language of the country where sold, and, if required in other languages:

(a) *net weight*]

(b) *the statement " milk powder from skim milk " or " milk powder having.... per cent. fat " according to the type of product. If milk powder containing under*

24 per cent. fat is prepared for certain uses, the statement " milk powder having per cent. fat " shall be adopted, for example " milk powder containing 15 per cent. fat ".

Thesis *E. — Standardization of methods for analysing milk powder.*

The methods adopted are those recommended by the Milk Products Sub-Committee of the Analytical Methods Committe of the Society of Public Analysts and other Analytical Chemists, London, for the determination of the water content, total solids and fat in milk powder.

The results of the world inquiries carried out by special International Commissions for cheese, condensed milk and milk powder, held by the International Dairy Federation have led to the decision that, immediately following on the approval by the Congress at Berlin, the intervention of the international Institute of Agriculture, Rome, should be requested in order that an International conference, may be organized with a view to holding discussions, on an international basis, of the following questions : Regulation of the preparation of and trade is processed cheeses, international regulation of the preparation of and trade in condensed milk and milk products intended for human consumption, standardization and official methods of analysis for condensed milk and dried milk.

The sale of milk and dairy products and the establishment of a district price acceptable by producers and consumers (market regulations) (1).

The question of measures relative to the regulation of the sale of milk and dairy products with a view to the establishment of a price acceptable by producers, retailers, and consumers is a problem of importance to the majority of countries. the establishment of the price of milk and dairy products should no longer be disregarded as in previous years. Prices are undoubtedly an essential factor from the general economic point of view, and may not develop in accordance with strict economic rules, but must be controlled by human agency. The necessity for eliminating the question of price as the sole regulating factor in the trend of the market and to subsitute this factor by a prudent collaboration is evident in the internal relations. The personal interest of the individual should give way to the welfare of the community, and this may and should take the place in international relations, of the purely national interest of the individual country The desire for collaboration does not in any way signify a claim of rights; it also entails obligations and this condition definitely applies in a very special degree to international trade The correlation between importation and exportation has already become a universally recognized principle. ¶ In the present period of continually changing situations in political economy, it is not a question of altering the form, but of altering the conception in the economic order which is required of man. Under a liberal form of government, man hat lost the control of economy, but in the future he will dominate it so far as he will have obtained control over himself.

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(1) By the General Reporter, Dr W von HASSELBACH, Berlin, Germany

Following on the general report on the regulation of the market system, the Congress decided:--

III. — Regulation of market conditions.

(a) *As regard the high importance of the measures for the regulation of market conditions proposed during the past year in the majori ty of countries, the Permanent Bureau of the International Dairy Federation is requested to consider in what way the study of the problems relating to this question could be advanced in collaboration of the National Committees.*

The Permanent Bureau of the International Dairy Federation is requered to invite the National Committees of this Congress and the Reporters who have presented their papers on the question of the regulation of market conditions, to supply regular and continuous data on the measures now taken and those which will be proposed in the future for the improvement of the system of regulation of the dairy market, in their own countries and the results obtained. The information thus obtained shall be communicated to the National Committees Reporters and other persons concerned.

(b) *The unchecked and constant fluctuation of prices in international trade in, milk and dairy products has an adverse influence on the economic position of the dairying industry of the countries affected. An effort should therefore be made to ascertain that such a system of prices in international trade shall obtain as will meet the requirements of the dairy industries concerned. The attainment of this object may be considerably facilitaded by the effective regulation of national markets which guarantee fixed prices.*

The third report prepared by the Special Committees of the International Dairy Federation deals with:

The hygienic production of milk (1).

As regards the hygienic production of milk considerable progress has been made since 1928, the date of the formation of the international Commission for the study and diffusion of methods for the production of pure milk.

This question has also been studied by international associations for hygiene and agriculture. Considerable progress has been realized and in two stages: the first stage is characterized by the extension of the principle of the hygienic production of milk to all dairy production, that is, in respect of both town and rural consumption whether raw or pasteruized milk. In the second stage a coordinated form of instruction is given by means of legislative measures. A third stage for the improvement of milk should now be initiated: avoidance of any difficulties which may arise in pasteurization, through preventive measures. Consequently at present the important question is the production of milk which may be easily pasteurized. The Reporter proposed the following recommendations which were subsequently adopted by the Congress:—

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(1) By the General Reporter, Prof. Dr. C. Gorini, Milan, Italy, President of the International Commission for the study and diffusion of the methods for the hygienic production of milk.

IV. — HYGIENIC MILK PRODUCTION.

(1) *Hygienic milk production based on the hygienic control of the stable and the minimum possible microbic content of the milk should seek to procure a milk easy to pasteurize, that is, a milk free from heat resistant micro-organisms, suitable for mild pasteurization and such as will ensure the total destruction of pathogenic germs and a satisfactory increase in its keeping qualities; at the same time it should be a simple and economic process and not affect in any way the natural properties of the milk as regard its nutritive and industrial qualities.*

(2) *The production of milk free from heat resistant microorganisms depends on the following principal measures:*

(a) *avoidance of rotting, mouldy, over fermented and butyric fodders,*
(b) *healthy udders without an excess content of normal flora;*
(c) *complete sterilization of containers and utensils;*
(d) *immediate cooling of the milk to below 10°-C.*

(3) *The production of a milk of easy posteurization is a necessary requisite for the required reduction in the number of grades of milk with the elimination of all grades of milk having an insufficient guarantee from the hygienic point of view, as also in connexion with a successful propaganda in favour of the consumption of milk and its derivatives*

The different dairy organizations (privately-owned societies, cooperative associations), their advantages and defects (1).

All types of establishments show certain advantages and defects and consequently they are not wholly suitable for the different branches of the dairying industry. Owing to the diversity of the economic condition in each country, in this respect, it is impossible to advocate any particular system by which all countries whould profit. A certain distribution between the different branches of the dairy industry is however to be noted: a considerable prevalence of cooperative dairies in the butter section, a high percentage of private dairies and rented dairies in the cheese section, with on the other hand, a predominance of

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(1) General report by Prof. Dr. ERNST ESCH, Kiel, Germany

capitalistic societies in the processed cheese and the preserved milk industries, a number relatively considerable of capitalistic establishments and societies for the supply of fresh milk to the towns. Naturally, the absolute superiority of any particular type of establishment for any branch of the dairying industry cannot be indicated, but the fact that private enterprises often leads to the formation of cooperative societies may be characterized as a law of progress.

The organization of scientific and practical instruction and vocational training in dairy schools (1).

The problem of instruction was studied in the reports sent from Denmark, Germany, England, Estonia, Finland, France, Italy, the Netherlands, New Zealand Austria, Czechoslovakia, and Hungary, from the different aspects of advanced instruction, specialized instruction, simple vocational instruction and instruction in milking.

The organization of *advanced instruction* varies according to the position of the dairying industry in the different countries. The basic education required Before commencing advanced studies is uniform and shows a certain similarity. According to the system adopted in the various countries, there are separate specialized courses in the dairying industry (institutes of specialized advanced study), vocational courses following universitary studies, professorships in the dairying industry, established in the majority of agricultural institutions. Institutes for advanced study and professorships in the dairying industry generally show a very high degree of specialization and work in close co-operation with their own research laboratories, experimental dairies and agricultural establishments.

Specialized instruction is divided into two different branches In some schools giving theoretical instruction only, teaching is both general and on subjects of a technical order. The prospective students are required to pass a very difficult entrance examination. There are also schools of specialized study properly so called, where a practically exclusively technical instruction is given, practical work is carried out at a dairy school attached to the school itself A preliminary period of study of from two to three years is also required.

Simple vocational instruction (instruction in technical subjects by means of short term courses or by itinerant teaching) is chiefly intended for assistants in the dairying industry, engaged solely in simple mechanical work. These courses are held in most countries.

The *schools for instruction in milking*, very numerous in many countries, have also an importance of their own.

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(1) Treated by the General Reporter, Director K ZEILER, and the Acting Reporter, E. HANKE, Czechoslovakia

In wishing to keep in touch with publications, dealing with the dairying industry, which are of the greatest importance, much difficulty is encountered in the question of language. Extracts and summaries of original works of interest should alvays be published in German, English, French, and Italian.

The importance of vocational training may be seen from the following resolutions passed by the Congress:

V. — VOCATIONAL TRAINING.

1. — *The International Dairy Federation is requested to recommend to the governments of the different countries through the intermediary of the national committees, the establishment of professorships in dairying industry, which may be combined with dairies and experiment institutions, at the high schools of agriculture (institutes attached to the Universities and higher schools). From the point of view of national economy, dairying is now of such importance, that its subordination to any other branch of agriculture (breeding, technology, etc) would not be justified.*

2. — *In schools of agriculture, dairying should be classed as a special subject, as pure quality milk is a primary requisite in obtaining first grade dairy products.*

3. — *Candidates for instruction in schools of agriculture should pass a period of supervised practical study in a dairy.*

4. — *The training of apprentices in dairying should be under strict supervision.*

5. — *The selection of candidates for dairy schools should be made by examination or after following a period of practical work in a dairy establishment.*

6. — *A central bureau hall deal with the registration of dairy experts who have completed a vocational course, and shall also function as a registry office.*

7. — *Information should be obtained regarding the organization of vocational training in countries which have not yet furnished reports on the question.*

8. — *A report shall subsequently be published by the International Dairy Federation on the subject of vocational training organizations in the different countries.*

9. — *The following questions shall be submitted for discussion by the next International Dairy Congress:* —

(a) *What is the best the oretical and practical system of instruction in dairying*

(b) *Methods to be adopted in the vocational instruction of subjects dealing with dairy technique.*

10. — *A committee which shall form a sub-committee of the third section should be established which shall deal with questions of the professional press in general, and shall become responsible for the establishment and organization of an information service of the international professional press.*

The nutritive value of milk and its derivatives and corresponding methods of instruction and propaganda.

(1) *The importance of milk as a food for human consumption* (1)

Opinion is unanimous as to the outstanding importance of milk as a food for human consumption. Milk is one of the most varied of food substances and is particularly rich in qualitative value (chiefly in vitamins). It also deserves to be called a « protective food ». Doctors however, have hesitated to employ this product extensively more particularly in the nutrition of young children.

This hesitation is due to the fact that infections are easily transmitted through milk and that children are much more susceptible than adults.

In studying the value of milk a clear distinction must be made between its nutritive and physiological value and its hygienic value.

In many respects, these values do not depend on the same circumstances.

No up-to-date doctor will now deny the high nutrition value of milk free from germs of infection and a first grade milk, nor the vast importance of a milk of this type as a food during the physical development of the child. On the other hand, it is evident that contaminated milk will have effects which are of a quite different order

(2) *Elements in milk important in nutrition especially vitamins* (2).

The importance of milk in respect of alimentary physiology depends largely on its vitamin content It has been known for some considerable time that the vitamin content of milk is not constant, and in the same way the content of its derivatives varies greatly. Predominant factors affecting this question are (*a*) species and breed, (*b*) feeding of dairy cows, (*c*) the technique employed in the production and preservation of milk and its derivatives

(3) *Propaganda in favour of milk* (3)

Propaganda in favour of milk is based chiefly on the physiological importance of milk from the point of view of nutrition All the advantages to be obtained by the use of milk as a popular food may be established scientifically. If, on the one hand, producers, retailers and consumers enjoy the immediate advantage of an increase in milk consumption, the general economic situation is also stimulated and benefited by such increase Improvement in the general system of *popular* nutrition intensifies the vitality of the people and favours the development of a vigorous generation.

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(1) By the Reporter, Prof GEORG von WENDT, Helsingfors, Finland.

(2) By the General Reporter, Prof SCHEUNERT, Leipzig, Germany.

(3) By the general Reporter, Prof SCHEUNERT, Leipzig, Germany

Hence, besides general propaganda for an increased consumption of milk, a special propaganda should be addressed to certain categories of the populace, for example, to children in the schools, among factory workers and in the family.

IVth Section.

DAIRY MACHINERY INDUSTRY, CONSTRUCTION, DAIRY TECHNIQUE. APPARATUS AND MEANS OF TRANSPORT.

(1) Plans and construction of dairy establishments, having regard to questions of drainage and the purification of residuary waters;

(2) (*a*), (*b*): Technical methods to be used in the treatment and transport of milk, apparatus for the preparation of packings for milk and its derivatives in dairy establishments;

(3) The economy in power in dairy establishments.

(4) The influence of materials adopted in the construction of utensils and dairy machinery.

Plans and construction of dairy establishments, taking into consideration the questions of drainage and the purification of residuary liquids (1).

In the construction of dairy establishments, it is advisable to cover the walls and floor with tiles from 3 to 6 cm thick because of the violent impacts to which they are exposed. It is naturally understood that the flooring and tiling should be resistant to acids and freezing. In fixing the tiles, it is advisable to adopt a cement containing as little lime as possible. The floor should naturally be constructed in such a manner that surplus milk as well as the residuary liquids may easily and rapidly drain off so as to prevent the lactic acid penetrating into the crevices. Ventilation and heating apparatus are also matters of the highest importance In this respect it is particularly advisable to establish an artificial ventilation system, which will prevent the formation of excessive moisture in the air. By means of artificial ventilation, the introduction of previously heated air is facilitated, which may be purified by passing through a filter.

Before constructing a dairy, the nature of the water supply and the possibility of eliminating residuary liquids should be ascertained. The residuary liquids of dairy establishments contain besides particles of soil, salts, fats, albumin, lactose as well as alkaline compounds, resulting from the solutions employed for cleaning purposes, while the composition and concentration of these liquids vary greatly. In the cleaning of the drainage system, mecano-chemical and biological methods are used. An important point in draining off the residuary liquids is the possibility of carrying out a preliminary washing down. If but little water is used in the washing, a more intensive clarification of the residuary liquids is necessary.

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(1) By the General Reporter, Ing. Dipl. Bücker, Berlin, Germany.

Technical methods for the treatment and transport of milk (1).

As regards methods of treatment, manipulation and transport of milk, considerable improvement is still necessary. This position is due not so much to technical problems but to difficulties of an economic order.

With regard to pasteurization, the treatment of dairy products by oxygen according to the Hofius process has caused particular interest ; the A. P. V. plaque apparatus and rapid pasteurization at high temperature have also been investigated. The results obtained by the Hofius process lead to the conclusion that this method is of great value in the dairy industry. A definite decision would be premature, but it should be noted that by storing in oxygen under a pressure of eight atmospheres, it is possible to preserve over a period of four week, liquid dairy products at temperatures under 8 C provided that the bacteriological conditions are fairly favourable and that on storing at ordinary temperature the product may be maintained fresh for two to three days. It remains to be proved whether the products treated and preserved in this manner are quite innocuous.

Apparatus for preparing packings for milk and its derivatives in dairy establishments (2).

In considering the plans adopted in the dairy industry for the preparation of packings for the sale of milk and dairy products, two modes of operation may be distinguished. The first concerns the preparatory work, *i. e.*, the preparation of the pack all ready for use or in separate parts to be assembled; the seconds relates to the actual packing of the product, *i. e.*, the preparation of packets, boxes, etc, etc. ready for consignment. The necessary material is supplied by the various packing industries of the food department and under the form of finished wrappers, and other additional elements (extras) or raw material for packing. In the first case, these are mainly durable packages, solidly made, intended for permanent use, in the other two cases, packing, only suitable for use on a single occasion, being of quite flimsy construction. The preparation of this type of packing, therefore in many cases, is not carried out by specialized industries, but in the dairy establishments themselves, generally in special departments.

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(1) By the General Reporter, Taffoureau, « Ingénieur des Arts et Manufacture », Paris, France, and the Reporter Oscar Kurmann, Bale, Switzerland.

(2) By the General Reporter, Dr. A. Gockel, Berlin, Germany.

Economy in power in dairy establishments (1).

Owing to the variations in the methods of operation adopted in dairy establishments, the varying degrees of importance of these establishments, the difference in power requirements and the method of utilizing this power, and also in consequence of the difference found in the cost of installing a power plant and the rates used in the different countries, it is impossible to establish any principles generally applicable to the establishment of a power supply system in dairies.

The most practical and economic system of power supply requires to be determined according to each individual case, it may however be stated generally that dairy establishments should preferably produce the power which they require or wish to transform, by adopting means of production at their own disposal If several sources of energy are available, the costs of practical utilization should be considered in making the final choice. Power requirements and their form of utilization in the dairies depends chiefly on the particular branch of business of the individual establishment.

The influence of the materials employed in the construction of Dairy utensils and machinery (2).

The general report presented by Ing. Dipl. Fritz (Halle) on the progress made in the construction of dairy utensils and machinery, taking into account the influence of the materials adopted, shows that the results of recent experiments in this field have also been helpful in solving the problem of the relationship between the material utilized and the type of apparatus to be constructed, a subject which so far has been neglected A given material is not necessarily suitable for the construction of apparatus of any type; the most economic form of manufacture determines in certain cases price and the possibilities of utilization. It is therefore necessary in the first place to take into consideration the influence of the material on the type of apparatus required

The utilization of new and specially adapted material for dairy apparatus has only recently come into vogue and numerous difficulties have still to be overcome before a final decision can be reached as to the most suitable form of technical use and the best materials to be adopted

The following decisions, resolutions, and recommendations were adopted by the XIth International Dairy Congress during the fourth session regarding the milk machinery industry, construction, dairy technique, apparatus and means of transport·—

I. — *In consequence of faulty construction and equipment, many dairies do not operate on an economic basis. It is important, therefore that in the building*

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(1) By the General Reporter, Prof. Ing Dipl Plock, (V D J). Kiel, Germany and the Director Reporter Ing. Dipl. Perkons, Riga, Latvia.

(2) Dr. Fritz Ing. Dipl. Halle, Germany.

of new establishments or in constructional alteration carried out in dairies, the plans and work shall be controlled by an impartial advisor, who is an expert in all matters of building plans, the execution of the work and the installation of the dairy equipment in accordance with the terms of the laws and the particular requirements of the establishment.

II. — *In studying and erecting plant for production and power transformation, the error is frequently committed of attaching excessive importance to purely technical problems. In future greater consideration should be given than in the past to the point of view of the dairying industry itself, particularly in regard to the operation of dairy machines.*

III. — *In the study of materials, attention has been limited to the point of view of the dairy industry, for example, their influence on the quality of milk and dairy products. It is recommended that greater consideration should be given to the technique of manufacture.*

IV. — *For the sale of milk and dairy products, it is advisable to use se packings (bottles, etc) so as to facilitate and increase sales and to ensure delivery under hygienic conditions.*

V. — *Owing to the diversity found at present in the methods followed in the different countries for the control and valuation of pasteurization establishments, a comparison of these establishments as regard their efficiency is impossible Standard methods for testing pasteurization plant are therefore recommended.*

VI. — *With a view to an improvement in packing methods and the encouragement of standardization in this field, the International Commission for the study of dairy technique is requested to include the following questions in its programme:*

(1) *to collect and exchange information regarding experiments carried out with standardized or other methods of packing;*

(2) *to establish the use of casks, tanks and receptacles for the sale of milk and dairy products.*

The proposals and recommendations made by Sections I to IV for special commissions for further detailed study will be transmitted by the Congress to the Executive Committee of the International Dairy Federation, and subsequently forwarded to the Commission of Studies for fuller consideration.

At the concluding meeting of the Congress, it was decided that the XIIth International Dairy Congress should be held in Austria in 1940.

E. GASSER.

MISCELLANEOUS INFORMATION

Agricultural pisciculture.

With regard to the fiftieth anniversary of the Royal Pisciculture Establishment at Brescia (Italy), it is important to draw the farmers' attention to the possibility of utilizing fish for multiplication in ponds, pools, irrigations, canals, etc.

In Italy, agricultural pisciculture has become an important adjunct to rice-fields (230,000 ha.), where the carp is bred at little expense. After the closing of the entrance apertures and the evacuation of the water by means of wire gauze, 250 to 300 small carps (20 to 25 gm.) may be introduced per ha (actual cost 60 to 70 lires per 1000).

When collected the carp show an average weight of 1000 to 1200 gm and represent approximately 200 kg. of fish per ha. (nett profit 250 to 450 lires).

National inquiry regarding the problem of nutrition in France.

At the beginning of 1937, a committee commisioned to carry out a detailed inquiry on the problem of nutrition in France commenced operations.

The object of the first part of the inquiry (now practically concluded) was to collect the documents necessary for estimating the available food sources of France, agricultural production, food imports and exports being taken into account.

The second part of the inquiry aims at studying as fully as possible French habits in the matter of food, in order to rectify the errors, deficiencies and unbalanced nature of the system of nutrition among the different social groups.

It will therefore be possible subsequently to consider the methods to be adopted in raising the standard of public health by means of an improved alimentary hygiene.

Such an inquiry may exert a considerable influence of the future trend of agricultural work, chiefly in respect of the relative importance of the production of the different food material obtained by cultivation of the soil.

G. R.

BOOK NOTICES *

BREMOND, E., Contribution a l'étude analytique et physico-chimique de l'acidité des vins. Alger, 1937, 139 pp., tableaux d'analyses et graphiques.

[This work which is the graduation thesis of the A., Professor of Chemistry at the Agricultural Institute of Maison Carrée (Algiers), is a detailed study on acidity and its role, especially in Algerian wines. The mineral, organic acids and bases which constitute the *acidity* of a wine are of considerable importance in the preparation, valuation and preservation of wines. In the usual procedure of analysis adopted, the total acidity and volatile acidity are determined, without taking into consideration the malic, lactic, succinin and phosphoric acids which play an important part in the acidity of wines.

The first part of this book studies separately the acids and bases contained in Algerian wines, and indicates the percentages recorded, methods of dosage and the results of his own experiments. The second section is devoted to the study of the pH of wines, of which the A. indicates the importance in the development of the disorders affecting wines, " tourne " and "casse ferrique". To determine the pH value, the A. advocates the use of a quinhydron electrode. Many diagrams show the correlation existing between pH values and the tartar index. In conclusion, the A. indicates the acidity regulating power of normal, eudemized and " tourné " Algerian wines.

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* Under this heading are included short synopsis of books received for review.

The third part gives complete schedules of the acid and basic substances contained in the Algerian wines, in the form of a balance between cations and amions. These schedules were established for the first time in respect of French wines following a careful analyse; they show a very satisfactory agreement between the total of the cations and that of the amions, which proves that the mineral substances and the organic acids of wines may be accurately ascertained and that the analytical methods now adopted are sufficiently accurate.

In the third section, the A. applies the laws of mass action and electrolytic dissociation in order to determine the apportionment in free acids and salts of the different organic acids of wines, which method does not give a direct chemical analysis. These observations carried out on a considerable number of samples of authentic wines enabled the A. to obtain very important results in particular, according to the salified tartaric acid percentage, determined by means of the pH and the amount of total tartaric acid, it appears possible to ascertain if a wine is pure, even when with the oenological rules usually adopted it is impossible to detect any adulteration. In fact, the addition of water or a strong mineral acid to wine causes an appreciable decrease in the salified tartaric acid content, which is recognized by the percentage of total tartaric acid and by the determination of the H ion concentration

This work which concludes with an extensive bibliography, will interest all technicians engaged in wine-producing problems, and also biochemists].

M J.

Le Congrès de la noix de Grenoble, by M Roy, Impr H. Bailloud, Voiron 1937.

[This volume of 187 pages, comprising numerous illustrations, is the collection of 27 reports regarding walnut cultivation and industry presented by experts in this branch of agriculture at the Congress which was held at Grenoble on 10 and 11 October, 1936.

As these reports cover every aspect in this branch of cultivation, the A has succeeded by judicious grouping, in presenting them in such a way that they follow each other as chapters in a book, treating this subject in the fullest possible detail.

Among the principal reports reproduced, mention may be made of the following

The walnut tree, grafting, and stocks.
Different methods of propagating the walnut tree.
Contribution to the chemical study of soils in walnut growing.
Manganese as a nutrient to the walnut tree.
The use of oils in protecting fruit cultivations.
Effective treatment of ring disease.
Foreign trade in walnuts and the requirements of foreign countries.
The walnut in therapeutics.
The abolition of fraudulent practices in the walnut trade

This book is undoubtedly most useful for those interested in this branch of cultivation].

D. K.

Forestry.

Hauska, L., *Das forstliche Bauingenierwesen,* Band, V. **Härtel** O. and **Winter** P, *Wildbach- und Lawinenverbauung.* — Wien und Leipzig Verlag von Carl Gerold s. Bohn. - 316 pages, with 287 figures and photographic illustrations in the text.

[This volume which may be considered as a treatise on the control of torrents and the establishment of some means of preventing avalanches, is divided into two parts. The first section, written by Mr. **Winter**, treats of the principles of these subjects and gives general indications regarding the necessary operations; the second drawn up by Mr. **Hartel** deals with the preparing of plans and the execution of control and preventive operations.

Ist part — Mr **Winter** first discusses the characteristics and the causes of the formation of torrents and their drift; he subsequently gives general explanations regarding erosion, corrosion and other effects produced on the soil by the action of water, avalanches, land sliding, glaciers and ravines A chapter is devoted to the importance and necessity of vegetation and an organized working of the lands drained by torrential streams; another chapter deals with the rules affecting the drift of torrents and the formation of the dejection cone. A very detailed description follows on the most important control operations to be carried out and the cultural and economic measures indicated for preventing damage.

IInd part — This section contains very detailed information on the practical application of the theory expressed in the 1st part of the volume and in the bibliography of many countries regarding the control of torrents Mr. **Hartel** in three chapters first discusses preliminary proceedings, the establishment of provisional plans, definitive projects, etc , in another details are given for the execution out of these operations and the measures to be taken in order to ensure the durability of the work carried out. The final chapter contains a table showing the time, material and number of workers required A special chapter gives a long list of forest species, trees, shrubs, and also herbaceous plants which are of value in bringing back mountains to their original state, an explanation being given of importance and use of each of the species for this work.

This volume would be useful not only as a manual for University students in advanced schools of forestry, but also for forest technicians and engineers who are engaged in the study of this branch of agriculture.

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PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography.

Frauendorfer, S. von und V. A. **Schaefer** Die Schrifttumsnachweise der Landwirtschaftswissenschaft. Internationale Übersicht ueber die laufenden Bibliographien und Referatblätter auf dem Gesamtgebiet der Landwirtschaft und den verwandten Gebieten. Zusammengestellt in der Bibliothek des Internationalen Landwirtschaftsinstitut in Rom. Berlin, P. Parey, 1937. 43 p. (Berichte über Landwirtschaft. Neue Folge 131. Sonderheft).

General.

EGYPTE. MINISTÈRE DE L'AGRICULTURE. L'Egypte agricole. Le Caire, 1937.

Agricultural Education.

ASSOCIATION OF LAND-GRANT COLLEGES AND UNIVERSITIES. Proceedings. 50th annual convention, edited by William L. Slate. Houston, Texas. 1936.

CHIN KUO CHUN. L'enseignement agricole et rural en Chine. Paris, P. Bossuet, 1937. 232 p.

General Agronomy.

AKADEMIIA NAOUK S. S. S. R. Почвоведение и агрохимия. Труды майской Сессии, 1935 г Москва, 1936, 480 p.
[Science of the Soil and agrarian chemistry].

THE AMERICAN FERTILIZER HANDBOOK. 30th year. 1937 Philadelphia, Ware Bros. Co., 1937.

Plant Protection.

BOURGVITS, G K. Бактериальные болезни растений. Москва, Академия наук С. С. С. Р. 1936. 339.
[Bacterial diseases of plants].

BRAUN, H Pflanzenhygiene. Richtlinien und praktische Massnahmen zur Gesunderhaltung des Pflanzen. Berlin, P. Parey, 1937. 98 p, (Thaer-Bibliothek, Bd 123)

Crops of Temperate Regions.

ARMSTRONG, S. F British grasses and their employment in agriculture. 3rd ed. Cambridge, University press, 1937. XI, 350 p.

Tropical and Sub-Tropical Crops.

MOLYNEAUX, R. The Cotton South and American trade policy. New York, National peace conference, 1936. 63 p. (World affairs books, 17).

INTERNATIONAL COTTON STATISTICS. Consumption of cotton for half-year ending 31st July 1937. Manchester, 1937. 28 p (International federation of master cotton spinners' manufacturers' associations).

INTERNATIONAL TEA COMMITTEE. Report of the International tea committee. 1st April 1935 to 31st March 1937. London, Whitehead Morris ltd, [1937].

Horticulture.

RODA, G. Manuale di floricoltura, 11ª ed. Milano, U. Hœpli, 1938 VIII, 356 p. (Manuali Hoepli).

MITCHOURIN, I. V. Итоги шестидесятилетних работ. (Издание 4-е пересмотренное и дополненное работами И. В. Мичурина за 1934 год. Москва, "Сельхозгиа", 1936). LXIV, 492 p.
[The results of sisty years' work]

Forestry.

BÉGUÉ, L. Contribution à l'étude de la végétation forestière de la Haute-Côte d'Ivoire. Paris, Larose, 1937 127 p (Publications du Comité d'études historiques et scientifiques de l'Afrique occidentale française Série B, nº 4)

INSTITUT INTERNATIONAL D'AGRICULTURE Enquête internationale sur la correction des torrents et sur la restauration des montagnes en Europe. Rome, [Ch. Colombo], 1937 209 p

KYLIE, H R.; G. H HIERONYMUS CCC forestry ECW enrollee training, Forest service, U. S Department of agriculture Washington, Govt print off, 1937. 335 p.,
[CCC = Civilian conservation corps]

STEBBING, E P The forests of West Africa and the Sahara a study of modern conditions. London, W & R. Chambers, [1937] viii, 245 p

Animal Husbandry

JAHRBUCH FÜR SCHLACHT- UND VIEHHOFE 1934-36 II Bearbeitet von Otto Fruhwald. Kirchhain N-L, Brucke-Verlag K Schmersow, 1937 305 + 31 p.

LITTLEWOOD, R W. Livestock of Southern India Madras, Govt press, 1936 xi, 239 p (Government of Madras)

Rural Engineering

CONGRESSO NAZIONALE DELLA MECCANICA AGRARIA Atti del 2º Congresso nazionale della meccanica agraria. Bologna 17-18 giugno 1935 [Roma, Soc. an. Arte della Stampa, 1935] 135 p (Istituto fascista di tecnica e propaganda agraria Comitato nazionale della meccanica agraria).

TELITCHKO, V. P. До історіі електрафікації сільського господарства УРСР. Київ, Академія наук УРСР, 1937 127 p. (Академія наук УРСС. Інститут історіі матеріальноі культури).
[On the study of the electrification of agriculture in the Ukrainian SSR.].

Agricultural Industries.

ANNUARIO VINICOLO D'ITALIA 1937-38. 18ª Edizione Milano, «Enotria», [1937]. 659 p. (Unione italiana vini, Milano)

ANTONOV, I. Млѣкоснабдяването на София. София, "Месо и млѣко", 1937. 135 p. [Second title in German: Die Milchversorgung von Sofia].

CONGRÈS INTERNATIONAL DES FABRICANTS D'HUILES. Scheveningue, 30 juin, 1er et 2 juillet 1937. London, [1937], 2 vols. [Second title in English: Congress of the International Association of Seed Crushers].

CONGRÈS INTERNATIONAL TECHNIQUE ET CHIMIQUE DES INDUSTRIES AGRICOLES. Schéveningue 1937. Comptes rendus v. I. II. Naarden, « De Rietkraag », 1937. 2 vols. (Commission nationale des industries agricoles des Pays-Bas).

DALY, R. F. Dairy accounts London, I. Pitman & sons, 1937. 130 p.

HESS, Textile fibers and their use. Chicago, J. B. Lippincott [1936]. xvi, 374 p.

Miscellaneous.

NOCHT, B. und M. MAYER. Die Malaria. Eine Einfuhrung in ihre Klinik, Parasitologie und Bekämpfung 2. erweiterte Aufl Berlin, J. Springer, 1936. V, 172 p.

PLANTING DIRECTORY OF SOUTHERN INDIA Coonoor, The United Planters' Association of Southern India, 1937 379 p

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MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

DIFFERENT METHODS EMPLOYED IN THE TECHNIQUE OF FRUIT STORAGE

The progress attained in the storage of fruits and vegetables in an atmosphere of carbon dioxide was described in a preceding article (1).

Besides this process and cold storage, which are universally known and adopted, there is another storage technique requiring the use of chemical agents, acting either mechanically by checking the respiration exchanges (action of fats or waxes) or by destroying the principal pathogenic agents causing the different types of rot (action of chemical salts, acids and certain gases) or by combining the two operations.

The object of this article is to describe these different storage processes, indicating their relative merits and disadvantages as ascertained by practical experience.

1. — Utilization of borax.

A brief history of the method will assist in a better comprehension of this process. About twelve years ago, Barger and Hawkins (1) examining all the investigations into the use of disinfectants for washing citrus fruits, reported the value of boric acid and borax solutions in the control of moulds. These writers also considered the utilization of permanganate of potash, copper sulphate, formalin, soap and hot water, borax soap, etc., and their experiments proved very definitely the superior value of boracic acid and borax solutions over the other products mentioned: fruits treated with a 3 to 5 per cent. cold solution of borax were considerably less susceptible to fungal attack than non-treated fruit. During subsequent years, these experiments were repeated by many research workers chiefly in the United States of America where in 1933 the Department of Agriculture at the Orlando laboratories (2) carried out a series of experiments which confirmed the results of the work already mentioned, and brought further information to light on this subject, *inter alia*, that the optimum borax concentration was 8 per cent.; however, owing to the poor solubility of this salt in cold water, solutions must be heated to obtain this concentration. According to this technique, the fruits should be plunged into the solution immediately following their arrival at packing and dispatch premises, that is, before noxious fungi have become too firmly attached to the fruit; consequently any delay renders the treatment less effective. The temperature should be from 38 to 43°C in order to maintain the borax in solution; at lower temperatures this salt crystallizes out rapidly. The duration of the immersion does not appear to be important, as a period of immersion from 4 to 5 seconds appears to be as effective as a period of 4 to 5 minutes; by allowing the fruit to dry slowly, a fine film of borax is deposited on the peel, and the treatment is even more efficacious (3), the spores of the different fungi causing rotting would be destroyed: particularly those of *Diplodia natalensis*, *Diaporthe citri*, *Penicillium digitatum* and *P. italicum*.

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(1) The storage of fruits in an atmosphere of carbon dioxide. Bulletin of Agricultural Science and Practice, No. 7, June, 1937.

While refrigeration is only effective during the transport of the fruit, the borax treatment, if properly carried out, delays the decay of the fruit not only at the packing warehouse but also during the period normally required for the distribution of the product, retail selling and consumption.

In consequence of these experiments, a considerable number of wholesale fruit distributing firms – especially of citrus fruits in Florida – established apparatus for borax treatment on their unloading platforms, and have obtained very appreciable profits; the method is not always easily carried out, and even occasionally, owing to want of organization, involves extra expense not compensating the advantages obtained, it is necessary to heat the solution and maintain it at a suitable temperature in order to prevent crystallization of the borax on the sides of the vat and the tubing. This crystallization of the borax on lowering of the temperature is a disadvantage as it is very difficult to redissolve this salt on renewing operations. It was also observed that heating was detrimental to fruit and often even had an adverse effect on quality.

In order to solve the problem, the Orlando Government Laboratories carried out in collaboration with the Florida Citrus Exchange a series of experiments on different borates having a degree of solubility in cold water higher than that of borax and chiefly alkaline borates which dissolve easily in cold water, their high cost, however, had till then prevented their commercial utilization

Taking into consideration, the economic aspect of the question, the American Potash and Chemical Corporation undertook a series of experiments which resulted in a new product entirely equivalent to borax in respect of fungicidal properties, and superior to the latter as regards solubility in cold water. This product is sold in Florida under the name of " metbor "; its main constituent is sodium metaborate obtained from borax; it is rapidly and entirely soluble in cold water at concentrations even higher than those necessary to obtain the equivalent of an 8 per cent. borax solution. As all the experiments have proved, it is the boric oxide contained in borax or in other compounds with a borax basis which is the principal protective factor against rotting; cold solutions of " metbor " containing a quantity of boric oxide equivalent to 8 per cent.

of borax, were found to be quite as effective as hot solutions of borax; consequently, this product eliminates the necessity of heating; the mixing of the solutions in the vats is carried out easily and rapidly. The odour of the solution does not change even after a long period of utilization. " Metbor " is also a very effective cleansing agent, and its use in the vat enables the fruits to be both cleaned and protected against disease.

The advantages of the borax treatment are however, not yet universally acknowledged. C. W. WARDLAW (4) reviewing the different experiments made with a view to prolonging the storage duration of fruits, points out that the use of borax may have a detrimental action and in citrus fruits cause a characteristic brown blemishing at the peduncle. In the particular instance of grapefruit, it has been demonstrated that the borax treatment not only fails to control *Penicillium* but clearly increases the susceptibility of the fruit to rotting caused by other fungi as *Botryodiplodia theobromae* and *Colletotrichum gloeosporioides*. In addition, this treatment would cause increased loss in weight, and wrinkling of the skin especially round the button end, leading to very marked blemishing at this point: these blemishes which are slight at first, would extend during storage and end by covering half of the surface of the fruit

It would be advisable, therefore, before utilizing this storage process on a commercial scale, to make preliminary tests, as all fruits do not react in the same advantageous manner to borax.

Experiments carried out in New Zealand and Finland on the disease of apples known as " internal cork " and on the causes of this disease deficiency of the soil and consequently of the fruits in secondary catalytic elements, boron in particular - suggest that the use of this product in the form of sodium borate or boric acid may be of value in the storage of apples

2. - Utilization of volatile substances, iodine in particular.

This important storage method was studied in England by R. G. TOMKINS, of the Cambridge Low Temperature Station (6). It consists in wrapping the fruits in paper impregnated with volatile substances, the vapour emanating from which will prevent the growth of organisms causing rotting These substances should be sufficiently volatile to diffuse through the paper and not too volatile to allow of a slow diffusion Present in small quantities this substance should prevent the development of moulds without damaging the fruit, without accelerating the maturation process or dissolving in the juice of the fruits which would acquire a characteristic taste; in addition, they should not render the fruit toxic.

It is easy to obtain substances which fulfil some of these conditions, but the difficulty arises in finding a satisfactory product from every aspect

Numerous products have been tried by TOMKINS both from the point of view of their action on fungi as *Trichoderma viride* or *Penicillium digitatum* and of their effect on different fruits (7). In order to determine more fully the action on flavour, the fruits treated were stored for a few days at a warm temperature. The following results were obtained.

Wrappers impregnated with essential oils are unsuitable as these oils are too volatile, and some of them have an injurious effect on the fruits; wraps containing benzoates do not exercise any action on rotting; those impregnated with diphenyl damage bananas and apples, and impart a characteristic odour to oranges, which, however, disappears after exposure to air for a few days; on the other hand, in the case of oranges, this product would have the advantage of decidedly checking the growth of moulds. The only product of real value was found to be iodine. In the following chapter are given the technique of this method and the cases where the utilization of this product was found to be successful.

Storage technique using the iodine process.

The process is extremely simple as it consists in wrapping the fruit in paper impregnated with iodine. These wrappers are prepared by immersing the paper in a solution of 12.7 grams of iodine, 10.0 gm. of potassium iodide, 200 cm^3 of water and 800 cm^3 of rectified spirit. After this soaking, the paper is left to dry at ordinary temperature. Sheets of paper 0.25 m^2 contain approximately 30 mgm. of free iodine.

Action on the different fruits.

R. G. Tomkins (8) experimented with this process in the storage of the following fruits: grapes, oranges, tomatoes, plums, peaches and apples. The following results were obtained:

Grapes: The grapes thus treated were less rapidly attacked than those wrapped in non-impregnated paper. In Table I are given the comparative data collected at various temperatures:

Table I. - *Effect of iodine wraps on the growth of grape moulds.*

Temperature (°C)	42	32	25	18	10	5
Type of wrap	Number of days elapsed before mould appeared on the grape					
Plain wraps	4	5	5	5	11	10
Iodine wraps	6	15	11	19	28	40

The influence of iodine consequently is very considerable, as with the employment of iodine wraps at average temperatures, storage life is two to three times longer than when plain wrappers are adopted.

The writer also ascertained the quantity of iodine adbsorbed by the grapes during storage by this method; this quantity may amount to 73.3 mgm. per kg. of grapes stored over a period of 20 days at a temperature of 20° C. The rate of absorption naturally varies according to temperature, variety, storage period, proportion of stalk in the bunch as iodine is absorbed much more rapidly by the stalks than by the grapes. Exposure to air causes practically no decrease in the quantity of iodine absorbed.

Tomatoes: Following 54 days of storage by this method, the tomatoes were only slightly attacked by moulds, while the majority of the fruits in plain wrappers had rotted At a temperature of 15° C, the ratio of rotting was 2 (iodine wraps) to 8 (plain wraps). As the separate wrapping of each fruit is a very long process, the writer suggests that these wraps could be advantageously substituted by cork shavings impregnated with iodine

The results obtained according to temperature in tomato storage are given in the following table:

TABLE II. *Effect of iodine wraps on the growth of moulds on tomatoes*

Temperature (°C)	20	15	10	5
Type of wrapper	Number of days elapsed before 50 per cent of the fruits were attacked by mould			
Plain wraps	24	38	38	44
Iodine wraps	54	72	88	88

Plums and peaches - The brown rotting of plums and peaches was checked by this treatment, unfortunately it is not suitable for certain varieties of these fruits, as they do not ripen normally and the flesh may even turn brown· consequently, the utilization of iodine wraps in the storage of these fruits is only advisable for certain varieties and for fruits harvested when completely ripe

Apples — In these experiments, before wrapping the apples in iodized paper, the fruits were intentionally bruised and contaminated with the spores of *Penicillium expansum* (green mould of widespread occurrence causing rotting in storage) The process was found to be very effective in preventing the development of this inoculated mould However, in some varieties, a very decided brown blemishing of the skin and a more rapid ripening is observed The fact that the method appears unsuitable for the storage of certain varieties indicates that further experimental work is necessary before recommending it for general use

Consequently, by means of iodine it is possible to check the rotting of certain fruits without damaging them, as this substance has a specific action on the moulds and not on the fruits However, it is also possible that its efficacity is due to the fact that it has the property of checking germination and growth of the fungus; iodine delays the germination of the spores by considerably prolonging the period of the appearance of the germination ducts and reducing their rate of elongation This substance also hinders the germination of the spores, at much lower concentrations than are required for checking the growth of colonies already established· iodine is therefore much more effective against spores and young mycelia than against fully developed mycelia; a very small amount will be sufficient to arrest the growth of the young elements without damaging the tissues of the ripe fruits.

It is also known that some fruits liberate ethylene at a certain stage in ripening, and that this gas contributes to the maturation of the fruits. It was thought that iodine would prevent the production of this gas, and consequently delay ripening. The utilization of iodine still shows some disadvantages, chiefly the yellow staining of the packing material. According to C. W. WARDLAW (9) iodine vapours would exercice a harmful influence on the tissues and would tend to weaken resistance to noxious organisms when these had invaded the tissues.

Thus, in respect of Trinidad grape fruit, if an interval of five days is allowed to elapse between harvesting and packing, the utilization of iodine wraps in this latter operation causes a definite increase in losses through rotting. Finally the iodine contained in the wrappers often removes the fruit odour which pervades the warehouses, without, however, affecting the odour or flavour of the fruit itself.

The use of iodine wraps for the prevention of rotting in fruits during storage, as advocated by TOMKINS, is of considerable practical value and has been widely advertized. It may be definitely affirmed that iodine vapour diminishes fungus growth; however, certain precautions should be taken before employing this method, precautions in respect of the double action exercized by iodine on the fruits; decrease in the activity of the spores and superficial mycelia, harmful effect on the tissues of the plant which become less resistant to invading organisms. When the pathogenic agents are only superficial, the iodine wraps will effect a definite action; if the infection is already latent, these wrappers will only increase loss through rotting. Consequently, it is necessary to study each particular instance fully before applying this method on a commercial scale.

Storage of fruits by means of certain special gases.

In this chapter, no mention will be made of storage in an atmosphere of carbon dioxide, as this method was treated in detail in a preceding article (see the Monthly Bulletin of Agricultural Science and Practice, No. 7, June, 1937) Particular reference will be made to some new methods of gas-storage, which were more or less successfully tested in different countries.

Storage by means of ozone.

From the time it was found possible to produce this gas industrially, its advantageous action on the storage of perishable food products was soon observed, especially in association with chilling. It is known that with a concentration of 3 mgm per cubic metre of air, the microbes occurring in the store room and lying exposed on the surface of any object, are destroyed in 3 to 4 hours. As a natural consequence, attempts were made to also utilize this gas for the storage of fruits. H. KESZLER (10) in Switzerland made the following experiment of which the results are worth reporting: The A. submitted 10 lots of apples, of 30 to 40 kgs. each, to the action of ozone for 2 hours every day; the temperature was maintained at 0° C., the atmosphere contained 70-73 per cent humidity. The results obtained for the greater part showed that the treatment was advantageous, and indicated that ozone brings about a considerable reduction in « breakdown » due to cryptogamic infection. Ozone appears not only to check the vegetative growth of the fungus, but also the formation of spores. If ozone thus appears to exercize a definite action on the growth of the destructive agents of fruits, of cryptogamic origin, and consequently act as a preservative, it has also been definitely ascertained that in certain cases it contributes to a more rapid maturation as observed in the experiments carried out by R. GANE on bananas (11), according to which tests, the rate of liberation of CO_2 from the fruits in an atmosphere containing ozone, would be higher than that of bananas stored in ordinary air.

In Germany, Dr. BLASE-GERA (12) working on the same subject, observed that fruits and vegetables kept in ozonized air maintained a greater firmness and superficial freshness. It appears that still better results may be obtained by utilizing this gas together with dry ice: however, this method remains to be studied. The same writer indicates that to date, the high cost of ozonizer apparatus has prevented any widespread utilization, consequently, the economic aspect has to be considered, and it would be necessary to produce small economic apparatus, attached to ventilators, and with a sufficient capacity for fair-sized storage chambers.

Storage by means of sulphur dioxide.

Experiments were successfully carried out with this gas in the storage of table grapes by E. CARRIÈRE and M. BOSC (13). The object of the experiments carried out by the writers was to reduce withering of the bunches caused by loss of water; it is necessary, therefore to maintain a sufficiently moist atmosphere at the same time preventing the growth of moulds by a continuous liberation of sulphur dioxide. The problem to be solved consisted in ascertaining the quantity of this product required for prevention of development of moulds, without transmitting an unpleasant flavour to the fruits. In the experiment, the " servant " variety of grape was used; the grapes were harvested in October and examined a the end of January. Experiments showed that medium-sized bunches kept longest. The bunches of grapes were first suspended by wire in a store-room containing cupboards, the use of which will be indicated further on. Sulphur dioxide was then sprayed into the store-room in order to destroy any mould microbes present, care being taken not to direct the spray jet into the bunches of grapes; the grapes were left in this atmosphere for a period of 48 hours, the store-room was then aired for 5 hours. During the following 7 or 8 days, all bunches showing signs of mould were removed. The cupboards mentioned above were provided with shelves and hooks on which the bunches of grapes were suspended. The shelves and hooks were previously brushed and washed with a solution of commercial sodium bisulphite, at 35° Baumé, diluted in 5 litres of water; on the lower shelf of two of the three cupboards utilized two bowls containing this solution were placed. After 15 days, one of these bowls was removed in each of the two cupboards and in one cupboard was replaced by a basin of water on the top shelf. The grapes were examined several months later, and the following results were observed: in the cupboard containing the solution and the bowl of water, the grapes were found to be in excellent condition: loss in moisture only amounted to 16 per cent.; in the cupboard containing the solution but not the water, the results were not so satisfactory; loss in water was 22 per cent. In the control cupboard, the loss in water equalled 27 per cent. and the grapes were in a poor state. In every case, the grape stalks had become dry.

Utilization of nitrogen peroxide.

The use of this substance is reported by R. G. Tomkins (14). It is known that nitrites check the growth of micro-organisms, and attempts have been made to prevent the rotting of fruits by diffusing nitrous acid vapour in the atmosphere surrounding stored fruit.

In the preliminary experiments, at regular intervals, nitrous acid (or rather the nitrogen oxides obtained from this acid) were liberated in a dryer containing the fruit. The liberation of this gas was obtained by pouring a solution of sodium nitrite into the strong acid. Experiments were first carried out on bananas; although rotting was not checked, on the other hand it was observed that at a concentration of 1 in 120, nitrogen peroxide delayed the change of colouring of the fruits – from green to yellow – without causing any apparent damage. This action of nitrogen peroxide does not appear to occur in all fruits, as for, example, not in tomatoes.

At a concentration of one in six hundred, nitrogen peroxide checked the growth of *Rhizopus* on plums; at concentration higher than 1 in 120, ripening was slightly delayed, but lesions appeared and the flavour became unpleasant.

Utilization of carbon monoxide.

In 1935, P. W. Zimmerman (15) studied the anaesthetic properties of carbon monoxide and other gases in relation to plant life His experiments confirmed the results obtained in 1933 by A. E. Hitchcock and other research workers (16), i. e. that carbon monoxide prevents the growth and diminishes the sensibility of plants to external influences; it is consequently an anaesthetic, the properties of which have not failed to arouse the interest of research workers. It is not possible to describe all the experiments attempted in the storage of fruits by this gas, and mention will only be made of the exhibition held by the Royal Horticultural Society London (17) in April, 1934, where one stand displayed apples which had been stored in an atmosphere of carbon monoxide: the appearance and flavour were perfect, and superior to cold storage apples.

Fruit storage by means of fatty substances.

C. W. Wardlaw and E. R. Leonard (18) in the journal of the Imperial College of Tropical, Agriculture, Trinidad (March, 1935) described the results of the experiments which they had carried out on the utilization of vaseline and similar substances for the purpose of delaying maturation in avocados. Among the fruits treated, some were wrapped in oiled paper; others in oiled paper plus a coating of vaseline; others were carefully covered with vaseline only. Storage temperature was 21° C. On measuring the CO_2 liberated from the fruits thus treated, the writers found that the rate of CO_2 freed was only effectively reduced in fruits coated with vaseline. The results obtained are shown in the following table:

TABLE III. — *Comparative evolution of CO_2 accumulated in the driers over a period of 24 hours.*

Treatment	Percentage of CO_2 liberated the			
	1st day	2nd day	5th day	8th day
Control.	6.2	6.2	14.6	16.4
Greased paper	5.8	—	—	—
Oiled paper plus vaseline	5.9	—	—	—
Vaseline only	2 8	3.3	4.1	2.1

With the exception of the fruits coated with vaseline, ripening took place in the normal period, so that on the eighth day, the fruits stored when still hard and green, had taken on a ripe colour and had become soft. On the other hand, the fruits covered with vaseline were still hard and practically green. However, the fruits thus treated often showed markings similar to brown blemishing observed in storage in a gaseous atmosphere. It may be that the reduction in the gaseous interchange – O_2 and CO_2 – due to the vaseline is too great, and that the blemishing is caused by an excessive accumulation of CO_2 inside the fruit. However, it is possible that this substance may be suitable for the storage of fruits not so soft as avocados.

In order not to reduce gaseous interchange too far, the same writers considered other substances which do not form so air-tight a surface on the fruits. Mention may be made of mixtures of vaseline and bees' wax, vaseline and cocoa butter, hard paraffin dissolved in liquid paraffin, a mixture of vaseline and linseed oil. These different substances separately or mixed gave results similar to those mentioned above; it is probable, however, that coating products will be obtained having a sufficient degree of permeability to oxygen and carbon dioxide.

It appears, however, that with other fruits, in experiments carried out in United States of America and elsewhere, better results were obtained by using emulsified waxes. The Food Machinery Corporation, Dunedin, Florida, has developed a new treatment and placed on sale a wax which appears to give every satisfaction in this respect in the storage of citrus fruits; this method known as the O. K. Mould Inhibiting Process (19) is applied as follows:

The preservative agent is an emulsion of wax containing an anticryptogamic product, of which the surface tension is naturally low, and consequently it is possible to treat the fruit with a cold solution. It is not necessary to lower the surface tension by heating. This low surface tension has the considerable advantage of effecting a uniform coating of the fruit, which is covered with a thin film of the wax, without the formation of bubbles. Drying, consequently, is rapid. Through this wax coating, it is possible by means of brushing, to give the fruits a better gloss. Treatment is effected as the fruits pass into the washer; it is successfully employed in the storage of oranges, grapefruits and tangerines in Florida.

The Florida Brogdex Distributors, Inc. of Dunedin, Florida, has also, marketed a product called « Brogdex » (19) effective in the control of mould and of withering during transport and storage. This product is very popular in Florida, owing to its efficacy and the new method of application: it is evidently prepared from a basis of wax, the wax is melted and passed under pressure through an atomizer; in this way, a waxy spray is obtained in which the fruit is polished at the same time. With this process it is possible to obtain a uniform wax coating of the fruit without unduly blocking the pores of the skin of the fruit through which the fruit must breathe to keep alive.

In the utilization of wax in citrus fruits, however, preliminary experiments are necessary in each country; as, if this method is advantageous in one, it might be unsuitable in another, thus in Australia (4) this process was of no use in the storage of Navel oranges; though the appearance is improved, on the other hand, the storage life of the fruit seems to be reduced.

Still in respect of citrus fruits, another treatment giving satisfactory results is that advocated by F. T. Adriano (20) and which consists in dipping the fruits in a 4 per cent. borax solution, drying and finally coating them with paraffin.

The treatment of pears and apples with waxy materials is also very widespread, chiefly in U. S. A. where this method is esteemed because of the value of the wax in improving the appearance of the fruit, reducing loss by weight and brown blemishing through withering, a defect occurring especially when the storage period is prolonged. However, this treatment has not always a favourable effect on all varieties of apples and pears. R. M. Smock (21) reports that in certain pears treated by this method, the yellow colouring of the skin did not appear and the flesh acquired a characteristic alcoholic flavour: unless the wax is removed before the anaerobic respiration becomes too prolonged, this process does not appear to be suitable for commercial use in respect of all varieties of pears, preliminary experiments are necessary before proceeding to adopt this process on a large scale It seems to be more suitable for apple storage.

The utilization of ammonium bicarbonate in storage.

Tomkins and Trout (22) recently suggested the use of ammonium salts as a means of reducing the losses due to green mould in citrus (with the use of these salts the atmosphere surrounding the fruits becomes charged with ammonia). These workers have established that it is possible to control successfully *P. digitatum* with the use of ammonium bicarbonate; on the other hand, this method has the very considerable disadvantage of causing blemishes on the skin of the fruit, which would prevent its utilization on a commercial scale.

A. GRASOVSKY and M. SHIFF (23) in 1932-34, had obtained slightly different and more favourable results These research workers studied the value of this chemical product in the storage of oranges, and tested its efficacy in the control of rotting. They applied this salt in three different ways. (1) in the form of crystals placed between the fruit and the paper wrap; (2) sprinkled between the layers of fruit wrapped in paper; (3) scattered outside the cases. The following results were obtained: ammonium bicarbonate prolongs the storage life of sound oranges, cut or bruised oranges, and oranges inoculated with moulds. This salt also prevents the spread of these moulds and the rotting due to *Diplodia*. Ammonium bicarbonate, however, promotes the development of rotting in the core, but its action on moulds largely compensates this disadvantage.

Storage by other chemical products.

Among the other chemical products more or less successfully employed in the storage of fruits, mention may be made of the following.

Formalin· REICHERT and LITTAUER (24) have attempted to treat fruits with formaldehyde gas, the treatment, however, did not give successful results. Substances such as caustic soda, sodium carbonate, sodium bicarbonate at 3 per cent, sodium silicates, sodium hypochlorite and various other preparations or soaps were tested with more or less successful results, at different temperatures, in order to prolong the storage life of fruits by delaying the action of cryptogamic agents. YOUNG and READ (25) obtained good results by treating Australian Navel and Valencia oranges with a 5 per cent. solution of sodium bicarbonate at a temperature of 43 to 45°-C for a period of 8 minutes; subsequently spraying with paraffin and finally wrapping the fruits in sulphited paper. Salicylic acid was also found to give good results.

The effect of caustic soda appears to be even more effective, as seen from the following table in which data are given in respect of different solutions:

TABLE IV. — *Losses observed in 25 specimens of oranges, inoculated and dipped in various solutions* (26)

Solutions	Loss %, after		
	11 days	18 days	24 days
Water	88	100	—
Sodium carbonate (10 %)	20	72	84
Sodium bicarbonate (5 %)	0	48	76
Caustic soda (2 %)	4	8	12
» (1 %)	16	40	44
» » (1 %)	0	20	44
» » (1 %)	76	88	92
Borax (5 %)	0	0	16

The advantageous effect of caustic soda appears even more definite in the following table:

TABLE V. — *Effect of soaking oranges in a 1 per cent. solution of caustic soda on the development of green mould* (26):

Treatment		% per case of spoilt oranges	
		7 days	14 days
Not soaked	Bruised and inoculated	42	56
	Bruised and not inoculated	7	27
Dipped for 1 to 2 minutes in a 1 % solution of caustic soda.	Bruised and not inoculated	7	30
	Bruised and inoculated	0	2

Mention has also been made of sodium silicate. However, D. H. ROSE and LITZ (27) report that the soaking of pears in weak solutions of sodium silicate or sodium hydroxide leads to the formation of blemishes on the surface of the fruit, which markings, however, may be removed by immersing the fruits for an hour in a 1 per cent. solution of hydrochloric acid.

Another important process in fruit storage is that given by L. W. TILLER (28) and which has been successfully adopted in the storage of pears. This method consists in wrapping the fruits with paper impregnated with 5.1 per cent. of dry copper sulphate. It would appear to prevent infection by *Botrytis* very effectively.

Conclusion.

Such briefly reviewed are the experiments and results obtained to date in the study of the different methods of fruit storage by means of chemical substances. As has been noted, the principal object in fruit storage is to prevent the development of pathogenic agents which cause rotting; numerous chemical products are utilized; chemicals exercising a definite action on the flora existing on the surface of the fruits are easily found; but it is very difficult to obtain products which do not have supplementary harmful effects on the fruit, effects most frequently taking the form of asphyxia by excessive checking of respiration, and the communication of an unpleasant flavour owing to the protective agent filtering through to the interior of the fruit. In addition, the value of these storage methods varies very considerably from one country to another; this value is also influenced by a considerable number of factors (degree of ripeness of the fruit, variety, conditions under which the experiment was carried out, etc.) so that before adopting or rejecting *a priori* a certain method it will be necessary to effect further research work. In this article, an endeavour has been made to point out that the field of this research work was very extensive and that the results already obtained have led to many valuable solutions of the problem of fruit storage.

D. KALTENBACH.

Publications consulted:—

(1) BARGER and HAWKINS. — *Borax as a disinfectant for citrus fruit.* Jour. Agr. Res., XXX, 2, 1925.

(2) R. M. STEWARD. — *Interesting new uses of soluble borates in the packing houses.* The Citrus Industry, May 1935.

(3) *Conservations des agrumes au moyen du borax.* — Fruits et primeurs de l'Afrique du Nord, nº 74, avril 1937.

(4) C. W. WARDLAW. — *Storage and transport of tropical fruits and vegetables.* Tropical Agriculture, No. 5, May 1937.

(5) H. O. ASKEW and E. CHITTENDEN. — *The use of borax in the control of internal cork of apples.* The Journal of Pomology and Horticultural Science. Vol. XIV, October 1936.

(6) R. G. TOMKINS. — *Iodised wraps for the prevention of the rotting of fruit.* The Journal of Pomology. September 1935.

(7) R. G. TOMKINS. — *Wraps for the prevention of rotting of fruit.* Rep. Food Invest. Bd. Lond. for 1935, 1936.

(8) R. G. TOMKINS. — *The rotting of fruit in storage.* Rep. Food Invest. Bd. Lond. for 1934, 1935.

(9) *Iodine and the control of fungal wastage.* Trop. Agriculture, Trinidad, 1936, 13.

(10) H. KESZLER. — *Ozon, ein Hilfsmittel bei der Kühllagerung von Obst.* Mitteilungder Eidgen. Versuchsanstalt für Obst, Wein und Gartenbau in Wädenswil, 1933, pp. 3.

(11) R. GANE. — *The effect of ozone on bananas.* Dept. Sci. and Indus; Res. Food Invest. Bd. Rept., 1934 (Guat. Brit.).

(12) *L'ozone et son emploi dans la conservation des denrées alimentaires en association avec la glace sèche.* Das Trockeneis, Jan. 1935.

(13) CARRIÈRE E. et ROSE M. — *Conservation des raisins par l'anhydride sulfureux.* Progrès agricole et viticole, 1934, 101.

14) R. G. TOMKINS. — *The rotting of fruit in storage.* Rep. of Food Invest. Bd. for the year 1934, London, 1935.

(15) P. W. ZIMMERMAN. — *Anaesthetic properties of carbon monoxide and other gases in relation to plant insects, and centipedes.* (Contrib. Boyce Thompson Inst 7 (1935), No. 2).

(16) P. W. ZIMMERMAN, W. CROCKER and A. E. HITCHCOCK. — *The effect of carbon monoxide on plants.* (Contrib Boyce Thompson Inst. 5 (1933), No. 2).

(17) *Gas storage of apples.* The Fruit World of Australasia. May 1934, No. 5, Vol. XXXV.

(18) C. W. WARDLAW and E R. LEONARD. — *The storage of avocado pears.* Imperial College of Tropical Agriculture, Trinidad, B. W. I., March 1935.

(19) *Attractive fruit properly presented solves marketing problems.* — The Citrus Industry, October 1935, No. 10, Vol. 16.

(20) F. T. ADRIANO. — *Handling of Philippine fruits.* The Philippine Journal of Agriculture, Vol. 5, No. 2, 1934.

(21) SMOCK, R. M. — *Certain effects of wax treatments on various varieties of apples and pears.* Proc. Amer. Soc. Hort. Sci. for 1935, 1936, 33.

(22) R. G. TOMKINS and S. A. TROUT. — *The use of ammonia and ammonium salts for the prevention of green mould in citrus.* Jour. Pom. and Hort. Sci. IX, 4, 1931.

(23) A. GRASOVSKY and M. SHIFF. — *The effect of ammonium bicarbonate on the storage of oranges.* Hadar, 1934, 7.

(24) I. REICHERT and F. LITTAUER. — *Preliminary disinfection experiments against mould wastage in oranges.* Hadar, IV, 3 and 4 1931.

(25) W. J. YOUNG and F. M. READ. — *Experiments on the preservation of citrus fruits.* Proc. Ist. Imp. Hort. Conf. London. Part. III, 1930.

(26) R. G. TOMKINS. — *The rotting of fruit in storage.* Rep of the Food Invest. Bd. for the year 1934, London 1935.

(27) D. H. ROSE and J. M. LUTZ. — *Injury to pears caused by paper liners impregnated with sodium silicate.* Jour. Agr. (U. S.), 47, 1933, No. 3.

(28) L. W. TILLER. — *Use of copper sulphate treated paper in cold storage of pears.* No. 3. I. Sci. Tech. 1934, 15.

THE EXTENT AND ECONOMIC IMPORTANCE OF BOVINE BRUCELLOSIS AND TUBERCULOSIS IN ESTONIA (1).

In Estonia, as in other countries where stock-breeding is much developed, brucellosis and tuberculosis are the principal infectious diseases affecting cattle. Although these two contagious diseases are not so prevalent in Estonia as in the majority of states in western Europe, they are none the less of considerable economic importance. The control of these two diseases has been for some time past one of the main objects of Estonian State veterinary hygiene, with the result that there has been a continual decline in their prevalence.

Of the two diseases, *brucellosis* is not so widespread in Estonia as was till lately supposed. Formerly the percentage of infected cows was, for want of definite information, estimated at as much as 7 per cent., but since it has been made compulsory to report all cases of brucellosis to the Veterinary Administration, the data obtained during the years 1932 to 1936 show that the disease was identified in approximately 100 stables only, with 1,300 head of cattle affected. It should be noted however, that up to 1936, it had not been possible to discover every case of infection.

As, however, only the smaller stables are likely to have been overlooked in the returns, the figures already established would not be appreciably modified.

By calculating for the year 1936 a total of 2,000 head of infected cattle, this figure would even then correspond at most to 0.28 per cent. of the total head of cattle.

It is exceedingly difficult to estimate the loss to the national economy caused by brucellosis, in view of the fact that the loss in calves, decline in milk production, in consequence of the infection of the udder and abortion, decrease in the selling value of milk on the town markets, frequent occurrence of sterility, fall in value of the animal for breeding purposes, etc., all represent losses which for the greater part may only be determined with considerable difficulty and uncertainty.

According to the detailed studies of LAJA (1929-1932), RIDALA (1933) and KARLSON (1936), the decrease in milk production due to infection of the udder and abortion may be estimated at approximately 25 per cent. For 2,000 infected cows, the loss in milk would correspond to approximately 1.3 million litres per annum, or calculated on a money basis, 78,000 Estonian crowns. With regard to the sale of milk in the towns, further losses have to be reckoned owing to the decrease in quality of the milk, as in consequence of the law regulating these sales, milk obtained from infected stables may not be placed on the market as tested milk and as milk for children. The losses in calves due to abortion may be estimated at approximately 3,000 crowns. It should also be taken into account that farmers with infected stock encounter considerable difficulties with regard to the sale of their animals, with the exception of those intended for slaughter, as in consequence of the regulations relating to tuberculosis control, the sale of cattle from infected to non-infected stock farms is prohibited. Only breeding calves may, under certain conditions, be delivered to these non-infected stock-farms. According to the new measure relating to stock breeding centres (published on 28 January, 1936), the registration in the list of breeding centres of herds infected with brucellosis is prohibited, even if the herd in question fully corresponds, in respect of breed and other qualifications, with the requirements laid down.

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(1) The International Institute of Agriculture will publish in this *Bulletin* a series of articles dealing with the present importance of *bovine tuberculosis* and *contagious abortion* in the different countries.

With regard to the transmission of brucellosis to man, isolated cases of infection and disease have been reported, and are moreover not excessively infrequent. According to a report of SCHLOSSMANN, out of the 1,245 specimens of blood examined at the Bacteriological Institute of the Tartu University during the years 1928-1930, 57, or 4.5 per cent., showed a positive agglutinization reaction. In 8 cases, clinical determination of the disease was impracticable. Further cases of infection occurred during the subsequent years; for some of the patients the contagion due to *Brucella abortus* had certainly occurred in consequence of contact with diseased animals. In the majority of cases, the probability is that infection is due to consumption of milk containing *brucellae*. The analyses carried out in 1930 by ROOTS, EINER, and NEI on 57 samples of milk obtained from the Tartu market, of which 8.87 per cent. were found to contain *brucellae*, show that the milk placed on Estonian markets for urban distribution for some years past held a fairly high proportion of *brucellae abortus*. In 1932, RIDALA proved that 7.6 per cent. of 368 samples of milk sold by measure and a minimum of 85.7 per cent. of the samples of bottled milk analysed at Tartu contained *brucellae abortus*. In consequence of the control measures undertaken during the past 3 or 4 years against brucellosis, the occurrence of *brucellae abortus* in milk supplied to the town markets has considerably diminished.

For the purpose of regulating the control of brucellosis, legislative measures were taken in Estonia in 1932, renewed in 1934 and adapted to the present position. According to these regulations, owners of cattle are required to notify the district veterinary surgeons if the presence of brucellosis is suspected. Following on this notification, a bacteriological and serological veterinary examination must be carried out on the suspected farm. If the suspicion is confirmed, the veterinary surgeon must inspect the infected stock-farm, warning notices must be posted on all shed doors, and all animals over one year, attacked by brucellosis, must receive a special ear mark. Cows, bulls, and cows in calf coming from stock-farms infected with brucellosis, may be sold only for slaughter and utilization of the meat, or else to other infected stock-farms. The calves may be sold to stock-farms free from brucellosis after having attained their fifth week, that is, when all the first molars of the lower jaw are cut, an indication which determines their age. Cattle from infected herds must not be sent to shows or markets, and must be kept off common grazing grounds. The cows should not be served by bulls from other farms, in the same way as the bulls of the infected farm may not be utilized for serving cows on other farms. This regulation also includes provisions relative to stabling quarters for calving, the presence of visitors in the sheds, disinfection and also the import of cattle from abroad.

In respect of the import of each animal, a certificate issued by the State veterinary surgeon of the exporting country is required, testifying that the said animal is free from brucellosis and that it originates from a stock farm where for a period of at least a year, no case of brucellosis has been verified. With regard to all imported cattle, with the exception of the animals forwarded direct to the abattoirs, specimens of blood are taken and the animals in question are maintained in quarantine until the analyses of the blood have given definitive results.

In accordance with the measures of 1932, the veterinary Administration has given free advice and assistance in respect of blood samples, laboratory analyses, etc. to all cattle owners who are prepared to undertake a systematic control of brucellosis, and have voluntarily signed a contract to this effect with the district veterinary surgeon.

In order to secure a more vigorous and effective control of the chronic and contagious diseases of cattle, such as brucellosis and tuberculosis, in 1935 specialized veterinary surgeons were engaged.

Several considerations dictated this supplementing of the district and official veterinary surgeons by others specialised for these diseases; it is thought: (1) that it will be possible with the assistance of these specialised workers to effect a certain education of all concerned tending to the general prevention and control of these cattle diseases; (2) that these specialists in the course of their periodical visits and inspections, made either on their own initiative or by request, may be able to interest cattle owners in the control of brucellosis and tuberculosis, and to suggest methods and, as required, make medical examinations; (3) that, in this way, the attention of stock-breeding organisations and of the large animal husbandry stations may be drawn to the basic importance of such prevention and control, to a much greater degree than heretofore.

The effect of propaganda work on a wider basis and of the practical working out of control methods has been reinforced by the opportunities which offer for the sale of non-infected cattle abroad and by the entry into force of the milk law - of special interest to farmers situated near the towns. By all these means a growing interest has been stimulated in the control of contagious diseases.

During the past four years, many stock-farms undertook on their own initiative, the control of *brucellosis* and in the majority of cases, have checked the occurrence of this disease by means of elimination.

The financial resources of the stock owners, however, appeared to be inadequate to a sufficiently extensive voluntary campaign of control, and in some cases little or no interest was shown. On the other hand, it was satisfactorily ascertained that the number of farms and animals affected was no longer so large as to make it impracticable to stamp out brucellosis by means of control measures organised and subsidised by the State, and within a reasonably short time. With this object, the law relating to contagious diseases was modified in 1936, and from that time, the State takes complete charge of the control of brucellosis, buying or disposing of infected cattle and paying the live weight price of the meat according to the official daily rates. There are also supplementary payments for milk production and breed qualities, when these factors exceed certain established limits. The details of this new regulation in regard to investigation of infected farms, the organization of laboratory work, the disinfection of stabling quarters, valuation of animals to be removed, enforcement of preventive and other measures on the stock farms, etc. are all prescribed in full by the Veterinary Administration.

Since the animals purchased from stock from which disease is being eliminated, or those removed because affected with brucellosis, are sold to the abattoirs, the money set aside for the control of brucellosis may circulate many times before the fund is exhausted.

The control measures carried out by the State in respect of brucellosis, by virtue of the aforesaid regulation, began on 1 September, 1936, and up to 1 July 1937, were applied to 46 stock-farms. The total head of cattle on these farms were 1842, of which, when control measures began, 285 or 15.5 per cent. were found to be infected, and were consequently removed. During subsequent inspections, 76 or 4.1 per cent. of the animals were eliminated. After the preliminary elimination of diseased animals, for 24 farms, i. e., for 52.4 per cent. of the herds under treatment, no further cases of infection were reported On the remaining farms, isolated cases of infection were still found, even on the second and subsequent inspections, but following the removal of these animals, the majority of the farms at the last inspection appeared to be free from brucellosis. Up to the present time unsuccessful results were reported from one farm only. The control measures on the stock-farms submitted to treatment were carried out with every attention and are gradually being extended, naturally within the limits of economic resources, to all herds affected. Funds intended for the control of brucellosis during the last ten months, from 1 September 1936 to 1 July 1937, were allocated for the elimination of diseased cattle to a total of 14.700 crowns. With this amount, 361 head of cattle were eliminated, so that the State paid an average of 40 crowns or over per animal. All other expenses relative to the control of brucellosis, such as those incurred through veterinary examination and inspection, laboratory work, etc. are met by the State.

The diffusion of *tuberculosis* in Estonia may be to same extent estimated by referring to the tuberculinization data published annually, and also on the basis of the results obtained from meat inspection. The results of tuberculinization reproduced in Table I for the different years do not, however, give an entirely accurate picture of the extension and development of tuberculosis in Estonia In fact, (1) the number of tuberculinized animals only represents a minimum proportion of the total number of cattle (as, for example, in 1927, this figure only amounted to 0 66 per cent. of the animals, in 1936, not more than 2 75 per cent) and (2) tuberculinization and the control of tuberculosis have been undertaken solely on the largest stock-farms, where, as is known, there is a higher proportion of tuberculosis than on other farms.

TABLE I.

Year	Number of cattle tuberculinized	Positive reaction	
		Head of cattle	%
1936	20,146	4,523	22.5
1935	17,957	5,723	21.9
1934	13,375	4,416	33.0
1933	10,959	3,409	31.1
1932	5,259	2,147	40.8
1931	9,959	4,354	43.7
1930	6,941	3,570	51.4
1929	8,229	3,785	46.0
1928	7,003	3,779	54.0
1927	4,210	1,790	42.5

If, in 1936, out of 20,146 head of cattle tuberculinized, 22 per cent. showed a positive reaction, this percentage would certainly be considerably lower, if tuberculin tests had been carried out on 200,000 animals instead of only 20,000.

A more accurate estimation of the development and diffusion of tuberculosis may be obtained from the figures of the inspection of butchers' meat

TABLE II.

Years	Number of animals slaughtered at the abattoirs or elsewhere and examined	Animals found to be affected with tuberculosis	
		Number	%
1936	66,083	2,629	4.0
1935	55,143	2,162	3.9
1934	55,665	2,085	3.7
1933	67,014	2,454	3.7
1932	57,374	2,825	4.9
1931	48,573	2,554	5.1
1930	49,421	2,722	5.5
1929	70,640	3,468	4.9
1928	72,909	4,445	6.1
1927	54,030	3,911	7.2

As shown in Table II, the percentages of cattle slaughtered because of tuberculosis fluctuate from year to year within fairly narrow limits and indicate during the past ten years in a general way a certain decrease, *viz*, 4 per cent. in 1936 as against 7.2 per cent. in 1927. The higher percentage given for the years 1935 and 1936 compared with 1933 and 1934 should not be taken as an increase in tuberculosis, as during these years, control measures have been stricter, and consequently a larger number of tuberculous animals were slaughtered.

Although tuberculosis is not so widespread in Estonia as in other European States, considerable importance is attached to the disease in this country, both from the economic and social point of view and that of public health. The extent of losses caused by tuberculosis to social economy cannot be readily expressed in figures; besides those losses which may be calculated with exactitude, as, for example, the quantity of meat destroyed in the abattoirs because of tuberculosis or declared as being of inferior quality, the sums spent by the State in the control of tuberculosis and other expenses, there is a whole series of losses which admit only of indirect and far from precise estimation, as for example, the premature elimination of a diseased breeding animal, decrease in value of the meat and hide, limitation of the milk production, fall in selling value in the trade in breeding stock, costs incurred in the pasteurization of skimmed milk at the dairies, etc. In 1936, the State paid stock-farmers approximately 10,000 crowns in indemnities for cattle declared infected with tuberculosis. This amount, however, only represents a very small percentage of the losses affecting national economy in respect of tuberculosis.

It is not known to what extent in Estonia *Typus bovinus* is transmitted to man, as an agent of tuberculosis. In this respect, experiments have only been undertaken recently and results are not yet available. There is reason to believe that the importance of *Typus bovinus* as agent of tuberculosis in man is not very appreciable in Estonia. As proved by detailed examinations, the milk placed on sale at the town markets centres is only found to contain the bacilli of tuberculosis very occasionally. In 1930, ROOTS, EINER, and NEI analyzed 57 samples of commercial milk from Tartu, in order to determine the content in these bacilli, by means of experiments caried out on guinea pigs. The result in every case was negative. In 1932, E. RIDALA, using the same method, analyzed 368 samples of milk placed on sale at the Tartu market, and only in two cases (0.54 per cent.) tuberculosis bacilli were verified. At Tallinn, ALJAK and LIIN analyzed 182 samples of milk sold in that town, and here also only two samples (1 14 per cent) were found to contain tuberculosis bacilli.

With a view to giving a stimulus to the control of tuberculosis in Estonia, a special decree was passed in 1922, subsequently modified and supplemented on several occasions. By virtue of this decree, cattle-owners are required to communicate with the district veterinary surgeon if any animal shows external symptoms of tuberculosis, following this notification, a diagnosis is made by means of physical and bacteriological tests, and by the allergic reaction If, on examination, the animal is actually found to be affected with tuberculosis it is necessary for the veterinary surgeon to examine the whole herd and to give the owner all advice necessary to enable him to control the disease In the case of declared tuberculosis, that is when the disease appears evident from external symptoms, in the lung, udder, uterus or intestines, or when the secretion of tuberculosis bacteria has been ascertained by bacteriological tests, the diseased animal is marked in a certain way on the ear, and should be delivered to the abattoir within 15 days at the latest. For cattle slaughtered by order of the veterinary surgeon, because of evident tuberculosis, the State pays: (*a*) to owners who have entered on a voluntary agreement with the district veterinary surgeon with regard to the control of brucellosis, and who have practised a complete and continual isolation of healthy cattle, separating them from the animals which showed a positive reaction, an indemnity equivalent to three fourths of the value of the slaughter weight, for each animal killed, while (*b*) an indemnity corresponding to half the value of the slaughter weight is paid to owners who have made similar agreements, but who have not completely isolated the healthy cattle, and (*c*) a compensation equal to a fourth of the value of the slaughter weight to cattle owners who have not drawn up any contract. When it is a definite question of tuberculosis or in cases of suspected mammary tuberculosis only, it is prohibited to supply the milk of the affected animal to the markets or dairies, or to utilize it in the raw state as a food or for the preparation of milk derivatives. If mammary tuberculosis is found to be definitely established, the utilization of the milk of the diseased animal is entirely prohibited. In conformity with the aforesaid decree, dairies and creameries are in consequence obliged to pasteurize skimmed milk at a temperature of 85° C, before delivery. This condition was included in the decree of 1926 in order to prevent the transmission of tuberculosis to pigs fed with this milk. Excellent results were obtained: according to the information available through the examination of pig meat at the abattoir, the number of cases of tuberculosis shows a continual decline. Thus, in 1936 only 0.8 per cent cases were found as against 2.4 per cent. in 1926.

According to the decree relative to the control of tuberculosis, cattle-owners who are willing to undertake an organized control of tuberculosis and who in this respect sign a contract with the district veterinary surgeon, receive considerable assistance from the Veterinary Administration: free visits and veterinary attendance.

As regards import of cattle, for every animal imported, a certificate issued by a competent veterinary surgeon, testifying that the animal or animals has shown no positive reaction to tuberculin, is required. All cattle coming from abroad, with the exception of the animals taken direct to the abattoir, are put in quarantine and examined for possible tuberculosis infection The animals suspected of being tuberculous or which have given a positive reaction to tuberculin are returned to the country of origin, or if this is not possible, sent to the abattoir The control of tuberculosis will be strengthened by the decree on stock breeding-centres, which has come into force this year. In consequence of this decree all breeding centres are required to enter on an agreement with the Veterinary Administration for the purpose of combatting tuberculosis Up to 1942, only herds where the proportion of animals giving a positive reaction to tuberculin does not exceed 25 per cent may be registered at the breeding centres Subsequent to this date, only those herds entirely free from tuberculosis may be registered As this decree refers chiefly to the best herds, which supply breeding animals, the control of tuberculosis is of a special importance in this respect.

A voluntarily undertaken and organized control of tuberculosis according to the principles of B BANG became general only in 1935, that is to say at the time of the conclusion of an agreement for the control of contagious diseases, in all their forms, and when veterinary surgeons were engaged with the special duty of control of tuberculosis and brucellosis These specialists are entrusted with the organization and supervision of all control measures. Foreign demand for cattle not showing a positive reaction to tuberculin has given a favourable impulse to the control of tuberculosis, which has consequently been undertaken with greater energy. In respect of the control of tuberculosis in Estonia, it may affirmed that considerable progress is being made and that successful results with regard to tuberculinization on the stock-farms, which began control measures in 1935, may already be anticipated. In the last two years, the isolation of infected cattle, their elimination and the breeding of young herds free from tuberculosis has brought about a considerable decrease in the percentage of animals giving a positive reaction to tuberculin.

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PRESENT STATE OF THE DAIRYING INDUSTRY IN THE DIFFERENT COUNTRIES: (14) FINLAND *

After the fall of the former Russian Empire; in 1919 Finland obtained her independence: The economic independence of the country led to very favourable results in respect of agricultural production and the standard of life of the rural population. The agricultural depression of 1928-35, however; partly checked this progress, but in consequence of the measures taken by the State and agricultural organizations, this crisis was successfully overcome.

Finland has a area of approximately 388,000 Km^2 and extends from the Baltic Sea in the east to the Arctic Ocean in the north. There is an average density of the population of 10 inhabitants per Km^2. The population is denser in the south and south-west of the country, with an average of 18.4 inhabitants per Km^2, while in the north, the average is only 2.4; and is even lower in Lapland. Practically $^2/_3$ of the area are covered with immense forests, 31 per cent of the land is unproductive, and scarcely a tenth is available for agriculture of which $^1/_4$ consists of cultivated lands and $^3/_4$ are grasslands and pasturages.

The population of the country is chiefly agricultural, 60 per cent. of the inhabitants being engaged in agriculture.

Finland is the most northerly situated agricultural country The climate is both maritime and continental. The dry season generally occurs in spring and the best weather occurs in June. Snow persists in the south west of the country for approximately 4 months, in the centre from 5 to 6 months and in the north from 6 to 7 months. For the first mentioned zone the vegetation period amounts to 200 days, from 170-180 for the second and approximately 120 days in north Lapland. In the north of Finland, the grazing period hardly covers 3 months and in the south a little over 4 months.

Temperature and moisture conditions in Finland are favourable for pasturage and grasslands and the soil produces forage crops suitable for stock feed

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* Preceding articles of this series: In 1934, No 1 (France), in the November *Bulletin* In 1935, No 2 (Italy), in April; No 3 (Hungary) in June, No 4 (Czechoslovakia) in July; No 5 (Austria) in August. In 1936, No. 6 (Switzerland) in March, No 7 (Denmark) in May, No 8 (Belgium) in November In 1937, No. 9 (Poland) in February No 10 (Bulgaria) in March; No 11 (Latvia) in April; No 12 (Lithuania) and No. 13 (Estonia) in June.

In the pre-war period, the distribution of landed property was very unsatisfactory; the system of farm tenancy was very frequently unsuitable for the conditions of the country. Following the signing of peace in 1918, reform of the system of landed property was undertaken on a wide scale, and has now been achieved. In respect of arable land, in 1929, the farms may be classified as follows:

TABLE I. — *Distribution of arable lands.*

Area of lands	Number of farms		Total area	
	number	%	ha	%
0,25 to 2,0 ha	78,101	27 0	73,417	3 3
2,10 to 10,0 »	141,376	49 5	677,343	30 2
10,0 to 25,0 »	51,757	18 0	767,112	34 2
25,0 to 50,0 »	12,240	4 2	402,125	17 9
50,0 to 100,0 »	2,865	1 0	187,111	8 3
100 and over »	32	0 3	138,111	6 1
Totals . . .	287,171	100 0	2 245,219	100 0

The number of small farms having area of 0.25 to 10 ha. consequently represents 76 per cent. of the total

I. — Dairy species and breeds.

I. — Cattle.

The typical structure of a country of small land-owners constitutes a very favourable condition for stock farming which furthermore is considerably developed, the total stock amounting to 1 8 million head, including 1 3 million cows.

In Finnish agriculture, cattle raising is of considerable importance, as besides timber and the products obtained from the timber industry, dairy products such as butter and cheese form the bulk of the export trade Dairy production is the main object of the farming. Consequently, Finnish cattle have been bred for this purpose, and at present, chiefly dairy cattle are kept. The indigenous cattle constitute the greater part of the total stock and have shown possibilities of considerable improvement. These animals are very suitable for the conditions and climate of the country; there has been no crossing with foreign breeds, but by means of improved nutrition and maintenance, and selection, a dairy breed has been obtained capable of giving a good milk yield, both as regards quality and quantity

A characteristic of Finnish cattle is that, like a large number of British breeds, they have no horns. In respect of the coat, three types may be distinguished: red (L S K) in west Finland, red backed with white markings, (I S K) in east Finland (these two types constitute the greater part of the cattle of the country) and white (P S K) in north Finland, which is the least developed type.

Among the foreign breeds, the Ayrshire predominates.

Owing to the medium size of the Finnish cattle, their average weight only slightly exceeds 300 kg ; however, there are some herds in which the cows attain up to 360-400 kg. The adult bulls may weigh from 450 to 500 kg

Notwithstanding their relatively small size and the little amount of forage they require, the Finnish cows yield a considerable quantity of milk. The average annual production of cows submitted to test amounts to 2,762 kg of milk containing 4 per cent. butter fat, consequently with an average production of 110 kg. of butter fat per year. If the average production is still rather low owing to poor feeding, the average annual production of the better-fed herds exceeds 3000 kg. per cow, and in some regions of west Finland certain animals give up to 9,000 kg of milk, that is to say a production equivalent to 16-22 times their own weight

According to VIRTANEN, cows' milk in Finland has a relatively low content of albuminoids (present average 3 12 per cent) and a somewhat high lactose content (present average 4 9 per cent).

Finnish cows are in a healthy condition it may be said that tuberculosis has been completely eliminated as a result of the unremitting control measures taken against this disease (0 1 — 0 2 per cent.). To attain this result, the slaughter of all animals showing a positive reaction to tuberculin in the following three years is advocated There are four cattle-breeding associations the *Ita-Suomen Karjanjalostusyhdistys* (Cattle-breeding Association for East Finland), *Lansi-Suomen Karjanjalostusyhdistys* (Cattle-breeding Association for West Finland), *Pohjois-Suomen Karjanjalostusyhdistys* (Cattle-breeding Association for North Finland), and the *Suomen Ayrshireyhdistys* (Finnish Ayrshire Cattle-breeding Association)

Cattle trade and export in Finland are controlled by a central organization of the associations or cooperative societies engaged in the sale of cattle, called the Suomen *Karjakeskuskunta*

2 — Sheep.

In respect of sheep, the total stock in 1935 amounted to 615,852 head over 1 year in age Sheep breeding is chiefly carried out for wool, meat and skin production The breed constituting the main proportion of the total head is the Finnish indigenous breed, These sheep are remarkably prolific: an average lambing is from 2 to 4 per ewe and in exceptional cases, 8.

In 1934, 1 1 million kg of wool and 4 7 million kg of meat were obtained from sheep-farming in Finland

3 — Goats.

The number of goats in Finland in 1935 totalled 12,581 head over one year in age. Goat breeding is of comparatively little importance

4 — Reindeer.

In considering animal husbandry in Finland, reindeer should also be taken into account, especially in regions where very poor returns are obtained in agriculture. At present the number of reindeer approximate 190,000, of which about 142,000 are over a year in age. In value, reindeer breeding is estimated at 70 million Finnish marks. Approximately 20 % of these animals are slaughtered each year and the annual production of reindeer meat is about 5 million kg. The skins are utilized in the preparation of fine leathers.

II. — Liquid milk.

The total milk production in Finland for 1934 has been estimated at 2,153 million kg. which were distributed as follows:

Liquid milk and cream	985 million kg.	= 45.75 %	of production
Used for feed	35 » »	= 1.63 %	»
Preparation of butter	1,054 » »	= 48.95 %	»
Preparation of cheese	79 » »	= 3.67 %	»

The total milk production now amounts to 2,500 million kgs.

The quality of the milk has also improved. The system employed in dairies of paying for milk according to quality is found to be very satisfactory, in this way accustoming the farmer to supply hygienic milk. The price is established according to fat content, and also with the keeping properties, purity of the milk, etc.

Milk is classified into four grades subject to analysis results in respect of reductase. Testing of milk supplied to dairies in 1934 gave the following results

1st grade	83.1 %
2nd »	13.1 %
3rd »	3.0 %
4th »	0.8 %

It should be noted that from 2nd grade milk, 1st quality butter and cheese may be obtained, from 3rd grade milk, fairly good quality products and that only the products resulting from 4th grade milk are of poor quality.

It may be noted that the fresh milk distributed to the population, is not pasteurised, but sold raw. This system is only possible in a country like Finland where bovine tuberculosis practically does not exist. The taste of the milk is excellent and in every region is of good quality, a fact which has decidedly contributed to the increased consumption in the towns. It is estimated that an average of 0.8 litres of liquid milk is consumed per capita a day. The sale of milk by measure by itinerant dairymen is prohibited by law, as also the changing into other receptacles in the street. The sale of milk is only allowed in specially equipped shops and is subjected to particular control measures. The stables of farms supplying milk to Helsinki are also inspected twice a year and classified.

For the preparation and sale of milk and milk products, the farmers have established a relatively extensive system of cooperative dairies. Cooperative dairies practically predominate, although in the south of Finland there are still some privately owned dairies. In southern and western Finland, cooperative dairies are very numerous while in eastern and northern Finland, the long distances and transport difficulties are the natural causes which prevent a wider extension of the system.

In 1935, in Finland there were:

Cooperative dairies	514
Associated dairies	41
Privately-owned dairies	38
Total	593

of which 483 prepared butter only, 68 butter and cheese, and 42 cheese.

The total quantity of milk supplied to the dairies in 1935 amounted to 695 million kg. of which 72.9 per cent. was utilized for butter, 7.2 per cent. for cheese and 19.9 per cent. was sold as liquid milk or cream. In 1936, the quantity of milk delivered to the dairies was even higher with approximately 800 million kg.

III. — Butter production.

Butter and cheese production is carried on either at the farm or at the dairy. In 1935 there was a butter production of 21.8 million kg. prepared at the farms and 22.3 million kg. made in the dairies. These latter chiefly make butter for export, the most important buyers being England and Germany. At present butter production in the dairies totals 26 million kg.

To compete on the world market with countries having a well-established trade in butter and cheese, excellent quality is essential in the products. Attainment of this excellence in Finland is due to the fact that not only milk, butter and cheese are paid according to quality, but also butter-makers and cheese-makers are paid according to the quality of the products they prepare, especially in the improvement of this quality. Dairies are also obliged to take part in dairy competitions and to submit to standing inspection by the Milk Inspection Bureau.

In accordance with the laws of 1913 and 1927, butter intended for export should conform with the following regulations. it should be prepared with pure cream of Finnish production and pasteurized, the water content should not exceed 16 per cent. (if the butter is exported to a country where 18 per cent. is authorized, this maximum limit is allowed for non-salted butter); the butter should contain at least 80 per cent. fats and be free from any preserving agent and colouring matter (aniline). Also the examination of the quality based on appearance, taste and odour should show an established minimum, the butter should be packed in casks of 50.8 kg. (corresponding to an English cwt) labelled with the mark of Finnish quality.

The dairies are required to place in each cask under the lid an inspection certificate drawn up on white paper. These certificates are supplied by the inspection Station and are inscribed " Pure Finnish Butter - Under Government Control ".

Inspection of the quality is carried out according to a system of points with a maximum of 13. Two qualities are distinguished: both carry the Finnish national mark; first quality butter, graded at over 10.5 points, is also labelled " Suomi Brand ".

In the following table are shown the variations in export trade in recent years. It is seen that the trade, in Finnish butter has not been excessively affected by the world crisis in agriculture and is now again increasing.

TABLE II. — *Butter exports for the years 1926-36.*

Year	Quintals	Year	Quintals
1926	132 119	1931	174 033
1927	150 765	1932	145 240
1928	133 758	1933	118 848
1929	166 061	1934	110 982
1930	171 124	1935	102 430
		1936	139 000

The rapid success of Finnish butter on the world market is due entirely to the dairy cooperative societies and their cooperative export centre " Valio " (Voinvienti Osuuslike Valio). At present, (1936), Finnish butter is exported by

Valio	255,936	casks (*)	or 93.7 %
Centrallaget Enigheten	13,598	»	» 5.0 %
Alands Centrallag	3,598	»	» 1.3 %

The " Valio " was established in 1905 and is an active and important central organization Its activity is not – as might be supposed – purely commercial, but is also scientific and propagandist. The organization deals with the training of specialized technical staff and other scientific activities.

IV. — Cheese production.

The following types of cheese are made in Finland. Emmenthal, Edam of varying fat content, loaf cheeses of varying fat content, Cheddar, spiced cheeses, Gouda, Turunmaa and Aura cheeses, and gruyère cream cheese of which approximately 0.5 million kg. were made in 1934 on the farms while 6.6 million kg. were made in the dairies. Cheeses for export are prepared exclusively in the dairies which at the present time have an output of some 10 million kg.

Among the Finnish cheeses, Emmenthal appears to be the cheese best suited to the European and American markets.

The export of cheese being mainly of the Emmenthal type, cheese inspection was introduced in Finland only after the world war, in 1925. Later, in 1927, it was legally enforced for the export of two qualities. Inspection is extended to all cheese manufacturers on a commercial scale.

(*) 1 cask of butter is equivalent to 50.8 kg

The quality mark " Suomi Brand " is accorded by the Cheese Inspection Bureau only to Emmenthal cheese for export with a fat content in excess of 45 per cent. of the dry matter. A different mark is given in the case of cheese of which the fat content is at least 30 per cent. of the dry matter. All other cheeses, if intended for export, may be utilised only as raw material for the cheese industry.

In view of the nearly continuous progress made in cheese exports during the last ten years (Table III) in spite of the world depression, which at one time also affected dairy products, it must be admitted that Finland has not only maintained her position on the world market in respect of cheeses, but has even improved this position, which can be said of very few countries.

TABLE III. — *Cheese exports for the years 1926-36.*

Year	Quintals	Year	Quintals
1926	28 865	1931	26 203
1927	29 491	1932	32 773
1928	16 485	1933	41 764
1929	21 938	1934	38 665
1930	21 239	1935	42 480
		1936	49 000

As in the case of butter, the export trade in Finnish cheeses is controlled mainly by the Central Cooperative Society " Valio " The following quantities are exported by

Valio	3,243,572	kg. or	65.8 %
Centrallag Enigheten	480 950	» »	9.8 %
Private firms	1,203,373	» »	24.4 %

The chief purchasers of finnish cheese are Germany, Belgium, and United States of America.

V. — Other derivatives.

In respect of other derivatives, skim milk is the only by-product of any importance and is utilized in the preparation of cream and industrial casein

E. GASSER.

Publications consulted.

Den Vestfinska Lantrasen — Kirjapaino 1925, Tampereen Kirjapaino-Osakeyhtion, S. 1-28

Das Finnische Ungehörnte Vieg und das Finnische Pferd. — Helsinki 1927, Druck der Verlagsaktiengesellschaft Otava, S.

Suomen Maataloustieteellisen Seuran 25- Vuotisjuhlajulkaisu.— Helsinki 1934, K F Puromiehen Kirjapaino O. Y., S 1-440.

THORSTEN ODHE, *Finland: A nation of co-operators.* — London, 1931, Williams & Norgate Ltd., p. 13-151.

Die Finnische Landwirtschaft. — Veröffentlichung des Landwirtschaftsministeriums, No 17, Helsinki 1936, S. 1-114.

Die Milchwirtschaft in Finnland. — Helsinki 1937, S. 1-16, Yhteiskirjapaino Oy.

« Valio » Centrale des laiteries coopératives de Finlande. — Helsinki 1937, S. 1-24, Ytheiskirjapaino oy.

SANDELIN A. E., Milchwirtschaft und Molkereiwesen in Nordosteuropa. 1. Finnland. — *Molkerei-Zeitung,* Sonderausgabe, Hildesheim, den 20., August 1937, S. 119-121.

MISCELLANEOUS INFORMATION

The IIIrd International Carbon Fuels Congress, organized by the Permanent International Committee for Carbon Fuels under the auspices of the National Research Council, Rome, 10-13 September, 1937.

The IIIrd International Carbon Fuels Congress assembled for the purpose of studying scientific, technical, economic, industrial, commercial and legislative questions regarding the possibilities of the utilization of carbon as an auxiliary fuel or as a component of auxiliary fuels. These studies were divided into the following five sections:

Section I. – *Solid auxiliary fuels.* — Section II. – *Liquid auxiliary fuels.* — Section III. – *Gaseous auxiliary fuels.* – Section IV. – *Application of auxiliary fuels to the colonies.* — Section V. – *Statistics and legislation.*

SECTION I. -- *Solid fuels*

Signor Flaviano Moscardini, engineer, *Comportamento dei gassogeni sugli autoveicoli,* (Behaviour of gasogenes when attached to motor vehicles).

Ing. Antonio Giulio Margheri *La gassificazione dei combustibili nazionali carbonacei in alcune delicate applicazioni di riscaldamento industriale.* (The gazification of national carbon fuels in certain special applications of industrial heating)

Società Romana Gassogeni *Note sperimentali sul gassogeno Excelsior a combustione centrale sferica* (Experimental notes on Excelsior central spherical combustion gazogene).

Ing Franc Aubert Rollé (Switzerland) *La production, l'approvisionnement et la vente des carburants solides* (Production, supply and sale of solid fuels).

D. Carlo Tondani. *Ricerche eseguite per l'agglomerazione del carbone vegetale e la applicazione del prodotto ottenuto ad un gassogeno sperimentale.* (Experiments carried out on the compression of vegetable charcoal and the application of the product obtained to an experimental gazogene). Comparative experiments of different types of wood-tar utilized as raw material in the production of briquettes; the richest is beech wood-tar which has a carbonization temperature of approximately 620° C.

Charles Berthelot. *Le gazogène pour camions automobiles alimenté à l'anthracite ou à semi coke; six années d'expériences techniques et commerciales dans le bassin minier du Gard.* — (Gazogene for motor trucks fuelled by anthracite or semi-coke, six years of technical and commercial experiments in the mining basin of the Gard). In the south-east of France, as well as motor trucks driven by gazogenes fuelled by wood charcoal and wood which have given excellent service, there are several hundred vehicles driven by gazogenes fuelled by anthracite which show good results. The range of these vehicles is approximately 250 km.

Dr. I. Tessari. *Ricerche sul funzionamento dei motori a carburazione con alimentazione a gas di carbone di legna.* (Experiments carried out on the working of carburation motors driven by the gas obtained from wood charcoal).

Travaux en cours au Laboratoire de « l'Instituto Portugues de Combustiveis ». (Work in course at the laboratory of the « Instituto Portugues de Combustiveis »). This Institute has made a systematic study of the possibilities of the utilization of « poor » gas for road and railway power, by substituting as far as possible wood charcoal for petrol.

Ing. Mazzucato. *I gassogeni nella trazione automobilistica.* (Gazogenes and motor traction). The A. describes the progress made by gazogene motorcars in Italy and the work of the Interministerial Commission. The A. gives a short list of gazogene models approved up to-date and a draft of their mode of operation.

Von Oberbarirat Meuth *Erfarhungen im Betrieb mit festen Brennstoffen in kleineren Motorfahrzügen, namentlich fur die Kleinlandwirtschaft.* The A. reports on the trials made over a period of several years in the alpine regions with tourist cars and small trucks.

Ing. U Trombetta: *Dati comparativi e rilievi diversi raccolti nelle prove con autoveicoli funzionanti con carburanti nazionali* (Comparative data and various observations obtained from the experiments carried out on motor vehicles operated by national fuels).

G Loreti *Indagini e resoconti sulla pratica dell'impiego di gassogeni per autoveicoli industriali in Lombardia* (Investigations and reports on the use of gazogene apparatus for industrial motor vehicles in Lombardy)

SECTION II. -- *Liquid fuels*

Ing Ed Tatti *Il motore ad iniezione a bassa pressione (Hesselman) come motore policarburante* (The Hesselman motor as a multi-fuel motor) The A describes the important results obtained from experiments carried out by the Laboratory for Motorization Inspection, on a petrol motor transformed on the Hesselman system, employing light fuels such as petrol or ethyl or methyl-alcohols or heavy fuels as gazoil or shale oil or bituminous limestone oil

J Barlot *Essai sur l'obtention d'essence et d'huile légère à partir des calcaires asphaltiques des Abruzzes* (Experiment on the obtaining of petrol and light oil from the bituminous limestone of the Abbruzzi)

Ing G Canestrini *Le miscele carburanti e le corse automobilistiche* (Mixed fuels and motor races)

Prof R Roma *Consistenze e caratteristiche delle rocce bituminose e loro trattamento per ottenere carburanti* (Composition and characteristcs of bituninous rock and the treatment required for the obtaining of fuels) An important report by illustrations, of installation systems and designs of machinery

Arnoul de Grey *Sur un nouveaux procédé de traitement de la lignite et des schistes* (On a new method of treating lignite and shales) The process consists in distilling the lignite or shales at a low temperature in the presence of a small quantity of calcium carbide, a high percentage of petrol is obtained.

F. Moscarini *L'alimentazione ad alcool etilico* (The use of ethyl alcohol in motors)

Demetrio Ferrari *Il carburante alcool-etilico catalitico eterificato e le miscele alcool etere solforico.* (Etherifised catalytic ethyl alcohol fuel and sulphuric ether alcohol mixtures). Comprehensive survey of the new process « Crima » for the production of catalytic ethyl ether

Ch. Berthelot. *Transformation de l'huile de schiste en essence à 650° C par cracking* (Transformation of shale oil into petrol at 650° C by cracking). -- The A discusses the development of the technique of cracking for obtaining petrols having a high octane index.

Ing. Fauser. *L'idrogenazione catalitica sotto pressione.* (Catalytic hydrogenization under pressure). — Progress made in recent years. Principal applications of the hydrogenization process. Petrol production for aviation. Production of lubricating oils. World development of the technique of hydrogenization.

Prof. F. Bergius. *Idrogenazione e alcool a legno.* (Hydrogenization and wood alcohol). — By his work on hydrogenization and studies on the problem of obtaining sugars and alcohol from cellulose matter, the A. has marked a new advance in the progress of chemistry.

Boleslao Silbermann. *Sulla utilizzazione del dimetilacetale come carburante succedaneo.* (The utilization of dimethylacetal as an auxiliary fuel). — The transformation of ethyl alcohol into dimethylacetal gives a product which is excellent as a fuel and which may be mixed with petrol in any desired proportion.

Prof. Ing. Camillo Giordani. *I carburanti liquidi di sostituzione.* (Auxiliary liquid fuels). — All the most important European powers with the exception of Russia and Romania are dependent on foreign sources for their supply of petroleum derivatives. The most effective solution of the problem of securing as soon as possible the necessary self-sufficiency consists in equipping the countries themselves with factories for the production of auxiliary liquid fuels.

Dr. Ing. Béla Mory. *La fabrication de l'hydrogène de lignite.* (The preparation of hydrogen from lignite). — The A. emphasizes the importance of anhydrous lignite for the obtaining of hydrogen by the Szigeth method, with regard to the production of synthetic petrol and discusses the results attained from Italian lignite.

Mario Speruzzi. *La carburazione a petrolio, a nafta ed a olio di catrame.* (Petroleum, naphtha and tar oil carburation). — Data on this subject, diagrams and experiments made on Diesel cycle motors.

SECTION III. — *Gaseous fuels.*

Many discussions were held on this section, chiefly on the use of gaseous fuels for motor vehicles Attention was drawn to the experiments carried out by the A G I P (Azienda Generale Italiana Petroli) and the utilization of methane in Italy, as well as the research work of Ing. Bandini

Ing S Sirtori (Alfa Romeo) *Risultanze pratiche sull'autotrazione a gas naturali o da generatori.* (Practical results of motor traction by means of natural gas or that obtained from generators).

Ing. Fiorentini *Impiego del gas carburante nell'autotrazione.* (The utilization of gaseous fuel in motor traction).

SECTION IV. — *Application to the colonies of auxiliary fuels.*

Reports of great importance were presented on the possibilities of producing and utilizing fuels from the colonies and on the extent to which each of the fuels is capable of a practical utilization.

Ing. De Capitani Vimercate. President of the Congress. *Possibilità di produzione e d'impiego dei carburanti sussidiari nell'Africa italiana.* (Possibilities of production and utilization of auxiliary fuels in Italian Africa). — The A. describes the general characteristics of a colonial fuel He gives a general survey of the utilization of the principal sources of energy available in the Italian colonies.

Crosley Society. *Le grandi centrali termiche a gas prodotto da combustibili indigeni.* (The important central heating stations using gas produced by means of national fuels). — Results obtained from experiments carried out over a quarter of a century in the construction of gazogene motors driven by vegetable fuels.

Dr. Bruno de Angelis. *L'economia e la politica dei gassogeni dell'A. O. I.* (The economy and policy of gazogenes in Italian East Africa), — and *Autogassogeni e organizzazione dei servizi a gassogeni* (Gazogene motor-cars and the organization of gazogene services).

Ing. F. Roma. *Sulla nobilitazione dei residui legnosi agricoli ed industriali per la produzione di carbonio carburante.* (Utilization of agricultural and industrial wood residues for the production of carbon fuel). — Considerable possibilities are offered in the production of carbon fuel from these residues. Among industrial residues, special attention is drawn to olive husks and the charcoal obtained from these as a carbon fuel. In this respect, mention should also be made of the utilization of the residues of the extraction of oil from grape stones (exhausted cakes) both as briquettes and as coke, of considerable heating capacity, (products of the Munoter firm, Milan).

An interesting special number of the international review "Le bois et ses utilisations" was published on occasion of the Congress by the International Timber Committee.

SECTION V. — *Economics, statistics and legislation*

Ing. Ch. Loskot. *Les sources végétales base de combustibles indigènes en Tchécoslovaquie.* (The vegetable sources, basis of national fuels in Czechoslovakia). - The continuation of the report presented at the IInd World Petroleum Congress held at Paris in 1937 on the position of fuels, by Ing. S De Capitani. This study deals chiefly with the fuel alcohol obtained from sugar beets and the mixture "Dynalcool" (50 per cent. alcool at 96°, 30 per cent. benzol and 20 per cent. petrol), in comparison with the use of petrol.

Col P Rouyer. *Le gazogène, considérations techniques et économiques* (The gazogene, technical and economic considerations). — The A describes the improvements made and reports a new apparatus which according to the A. represents a very considerable advance in the technique of gazogenes

Ing M Pandolfelli *I carburanti sussidiari nella legislazione italiana.* (Auxiliary fuels in Italian legislation). — Summary of the legal measures adopted in Italy for the purpose of promoting or rendering compulsory the use of substitute fuels for motors intended for automobile traction (subsidiary State services, etc)

Avv A. Sullam. *Impiego e produzione di carburanti e lubrificanti nelle bonifiche italiane.* (Utilization and production of fuels and lubricants in Italian land improvement) — The A. recalling his agricultural experience, rejects many products as not being capable of profitable utilization He suggests examining, as an experiment, the use of methane, peat, timber waste. Special mention is made of sweet sorghum, of *Helianthus annuus* and of the castor oil plant for the production of alcool and lubricants, the stems are utilizable as fuel in the gazogenes

CONCLUSION

The main impulse given by the Congress was in the direction of the utilization of liquid, solid and gaseous carbon fuel, but chiefly of gazogene gas, for traction. It was observed that further research was necessary to obtain standardization and improvement of fixed or semi-fixed farm gazogenes operated mainly by wood fuel. It is a question of grouping all the data which the different countries may supply in respect of improvement in gazogenes, so as to ensure economic, simple and lasting apparatus, adaptable to the most varied uses (agricultural machines, threshers, production of electric current, heating for the house, etc). Dr. Bergius, President of the

Section, in a communication briefly reviewed his process for the production of wood alcohol and wood sugar, a process improved by Scholler. Attention is drawn to the ever increasing importance of fuels obtained from different oils and oleaginous seeds by pyroscission and catalytic hydrogenization of vegetable oils and fats (groundnut, oil palm, karité butter, castor oil, etc.) taking as a basis the well-known processes of Mailhe and Egloff, and the Roux method, employed in the Sudan. Particulars will be found in the report presented to the IVth session by Ing. De Capitani.

With regard to the exhaustion of the known petroleum reserves, it may be remarked that even nations rich in natural fuels endeavour to produce large quantities of ethyl alcohol and auxiliary fuels. Consequently, an interchange of views between the different countries is essential in order that the exploitation of plant production and chiefly of forests may be organized in every country while not endangering however, the world forest patrimony.

RECOMMENDATIONS AND RESOLUTIONS.

I — The Congress recommends that in the different Countries a methodical study shall be undertaken of vegetable fuels in the natural state or carbonized in respect of their utilization in gazogenes with a view to an improved organization in their production. (Sig Merendi).

II — The first Section of the Congress having taken cognizance of the reports of MM. Droz, Larguier and Tessari, considering that the development of the use of gazogenes for motor-car traction is closely allied to the organization of distribution and that this is not possible unless the fuel adopted complies with definite conditions of identity and registration.

Considers that the first stage to be accomplished is the determination of limiting characteristics which the fuel should possess

In respect of solid mineral fuels and fuels obtained from the carbonization of minerals or plants, the following characteristics would be required.

(1) Humidity and moisture absorption. (2) Friability (3) Ash content and fusibility of same. (4) Dimensions (5) Reactivity. (6) Tar and sulphur content. (7) Weight of the quantity of fuel which may be contained in a decalitre

In respect of vegetable fuels such as wood, these characteristics may also serve, except for those characteristics which cannot apply (reactivity and friability).

Invites the delegates of the different countries to bring the question to the notice of the competent organizations in order that the study of methods of determination of the different characteristics may be entered upon immediately.

III. — The Congress,

considering that despite the imposing number of reports presented to the 1st Section, in respect of solid fuels, the problem of gazogene motor traction necessitates further elucidation.

considering also that from the very considerable discussions to which eminent experts and specialists of the problem in question contributed, it appears that such a development cannot take place without a closer collaboration between motor engine builders and makers of vehicles

recommends that such a collaboration be speedily effected in order to attain a more concrete and effective solution for the problem of gazogene autotraction, especially in respect of the requirements of public collective traffic, either urban or interurban. (Mr. Eller Vainincher).

IV. — The Congress recommends that illuminating gas shall be known as *national fuel*, as for the production of this gas, it is not necessary expressly to import a larger quantity of pit coal.

In this respect, a law has already been established, but only with reference to coke gas. It is incomprehensible that coke gas should receive more favourable treatment than illuminating gas (Mr. Giarratana).

The Presidency received a vote of confidence allowing it every authority in modifying certain draft resolutions left in suspense, in giving them a more general character, or transforming them into recommendations.

On the proposal of the German Delegation, it was decided to hold the next Congress at Berlin in October, 1938.

G. S.

FOURTH INTERNATIONAL GRASSLAND CONGRESS. — The Fourth International Grassland Congress was held at Oxford and Aberystwyth from 8 to 23 July, 1937, under the presidency of Prof. Stapledon, Director of the Welsh Plant Breeding Station. Approximately 450 delegates representing 37 countries took part in this Congress. Among the foreign delegations, the most numerous was that of the United States, a fact which testifies to the increased interest of U. S. A. in the problems regarding pasture-lands following on the disastrous consequences of soil erosion in certain regions. Besides persons interested in research work on grasslands, a considerable number of farmers and representatives of the seed trade, and of the chemical fertilizers and agricultural machinery industries were present.

The proceedings of the Congress were divided into 6 sections

I. *Ecology of grassland.* — II. *Mixture of seeds.* — III. *Plant selection* — IV. *Manures and chemical fertilizers.* - V. *Nutritive value of pastures.* - VI. *Pasture lands Management, yields and economic aspects*

Besides the publication of the original texts (£ 2), a volume of summaries in English and French of all the reports submitted at the Congress will be issued, and will be placed on sale at the Secretariat of the IVth International Grassland Congress, Aberystwyth (5 s.).

The organizers of the Congress offered the members very interesting tours to the most typical grassland regions of England in the centre and south-west, giving them the opportunity of visiting various experiment stations, agricultural institutes and schools.

The offer of the Netherlands to hold the Vth International Grassland Congress in Holland (1940) was accepted and Mr Huizinga was unanimously elected President of the next Congress. With regard to the VIth Congress, which will take place in 1943, the Government of Hungary has already made a proposal that it should be held at Budapest.

T. A.

INTERNATIONAL CONGRESS OF HORTICULTURE, BERLIN, 1938 The International Organization Committee of International Congresses of Horticulture informs all those concerned that the next Congress will take place at Berlin, from 12 to 17 August, 1938.

The subjects treated are divided into 10 sections and the programme covers all aspects of horticulture in its various branches both from a scientific and practical point of view.

D. K.

BOOK NOTICES *

A. **Marescalchi-G. Dalmasso.** -- Storia della vite e del vino in Italia. 3 vol. Milan 1931-1937. Arti Grafiche Enrico Gualdoni.

These three volumes with which the AA. Senator **Marescalchi** and Prof. **Dalmasso** have enriched Italian scientific and historical literature, trace the history of the grape vine and wine in Italy from the very earliest times of civilization, and even from the first appearance of the *Ampelideae* in the Neocene era, up to the latest progress attained in oenological technique and economy. This work like that of **Bassermann Jordan** for Germany, will constitute for Italy, an extensive and original source of research for writers concerned with the history of wine-making, or with its economic or technical aspects.

Besides this aspect of the subject, admirably treated by **Marescalchi, Dalmasso,** and **Giancalone Monaco,** this work includes other special studies relating to the artistic productions and the aspects of social life to which the vine and wine have given through centuries, inspiration, the subject and trend. Literature, plastic art and painting, music and popular poetry, in the finely illustrated pages of these three volumes all bear witness to the powerful impress made by the use and technique of wine on the history of Mediterranean and Italian civilization.

This work, therefore constitutes an encyclopedia of the science of vine-growing and wine making, studied through its manifestations and its influence, and arranged by eminent specialists in a form which will attract the reader.

It would be eminently desirable to have other similar studies on other equally important branches of agriculture. The hope may be expressed that work on these lines may be attempted in respect of animal husbandry, distinguishing the different zones of Europe where this industry shows special technical and economic aspects

Giacomo Acerbo.

Nottin, P., Daron, A. et Pignarre, M. — Recherches sur la valeur industrielle des blés durs. Constantine, 1937, Editions Braham, 237 p. avec annexe; tableaux analytiques.

This work is the outcome of analytical studies carried out at the Laboratory for the Control of Flours, Ministry of Agriculture.

In the first section, the AA. give an economic survey of the importance of durum wheat throughout the world, and in French North Africa in particular

The studies, which during the years 1932 and 1933, regarded lots of durum wheat obtained from different parts of French North Africa, were, from 1934 onwards, concentrated on the wheats now cultivated in the Constantine Department. As a result of this detailed work, excellent results were obtained with regard to the determination of the qualities of the different varieties and their dependence on environmental factors. The AA did not find any characteristic varying parallel with the yield in semolina They also conclude that it is impossible to foretell, by a rapid calculation, the semolina yield of a durum wheat The trade estimation of the yield in semolina made according to the appearance of the wheat and the weight per hectolitre of grain is empirical and erroneous This system is not based on any established practical experience nor is it justified by any reliable scientific control.

The AA have been able to establish as a general rule, that the content of nitrogenous substances of the grain varies inversely to the total rainfall of the region.

The extensimetric experiments not always having given results agreeing with the characteristics observed after cooking, the AA adapted and improved the method worked out by Mr **Barbade**, Director of the " Grands Moulins ", Corbeil. By means of this technique, it appears possible to determine fairly exactly, the quality of a dough and its behaviour on cooking On the contrary, the quantitative analysis of the nitrogen or gluten content of a wheat does not afford an estimation of the plastic qualities of the dough. These qualities depend more on the quality than the quantity of the proteinic complex. The influence of environmental conditions of the region appear to be preponderant and of considerably greater importance in determining the quality of the wheats, than the characteristics of the variety which may be completely modified by environmental factors. This results in what the AA. call "regional typical wheats".

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* Under this heading are included short synopses of books received for review.

In the third part of the book, entitled "Improvement of the industrial value of durum wheats", the AA. present very detailed proposals on the subject of the standardization of wheats, standardization which, according to them, should be made compulsory for export wheats. Although the weight of an hectolitre of grain is not an exact indication of semolina yield, the AA., having ascertained that commercial grades having a guaranteed semolina yield, may be obtained if the lots are homogeneous and the result of the mixture of several trade lots, adopt the system of the weight of an hectolitre of grain as a basis of classification.

The general conclusion drawn by the AA. from their studies is that the production of North-African durum wheats compares favourably with that of all other wheats of any other origin. This wheat has excellent industrial qualities, and with an improved presentation of trade lots, should give every satisfaction]

N G.

FERRARI, P. Compendio di zootecnica. Città di Castello 1937, 202 pp.

[The A.'s method of treating general animal husbandry differs from those usually adopted in treatises on this subject. In the first chapter, the phenomena of heredity and variation are discussed, showing the different theories and hypotheses which have been published on these questions The theoretical and practical aspects of animal breeding are dealt with, special attention being given to methods of reproduction and particularly selection and cross-breeding. A special chapter is devoted to stock-feeding. In this chapter, besides general information on physiological chemistry and the biological factors of animal nutrition, the A treats on the different concentrated foods and the methods of their preparation and distribution The concluding chapter deals with stock hygiene An analytical index facilitates the use of this book].

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography

GRAF, D. W. Agricultural engineering. A selected bibliography [Washington], U. S. Department of Agriculture, Bureau of Agricultural Engineering, 1937

General.

ASSEMBLÉE PERMANENTE DES PRÉSIDENTS DES CHAMBRES D'AGRICULTURE. Session ordinaire des 27-28 mai 1937. Compte-rendu. Amiens, Imp nouvelle, 1937 504 p

General Agronomy

DÜNGEKALK-LEITFADEN FÜR WIRTSCHAFTSBERATER Berlin, Kalkdienst, Landwirtschaftliche Abteilung der Fachgruppe Kalkindustrie, 1936 120 p.

SINDACATO NAZIONALE FASCISTA TECNICI AGRICOLI Agricoltura e Impero Roma, Tip ed. Sallustiana, 1937. 694 p. (Conferenze tenute al Corso di organizzazione tecnico-agricolo-coloniale da Pirelli, Giordani, De Cillis [etc] (Roma 5 settembre-4 ottobre 1936-XIV. Firenze, 5-13 novembre 1936-XV)

WAKSMAN, S. A. Humus origin, chemical composition, and importance in nature. London, Baillière, Tindall and Cox, 1936 XI, 494 p.

Plant Protection

BRAUN, H. Kurze Anleitung zur Erkennung und Bekämpfung der wichtigsten Unkrauter. Berlin, P. Parey, 1937. 75 p.

SCHLUMBERGER, O. Hilfsbuch für die Hagelabschätzung v. 2, Berlin, P Parey, 1937. 24 feuilles. (Pareys Taschenatlanten, hrsg von Otto Appel, Nr. 13).

Crops of Temperate Regions.

KRASOVSKII, S. A. Соя и ее сорта. (По данным государственного сортоиспытания за 1927-1935 гг.) Под общей редакцией И. А. Минкевича. Ленинград, Всесоюзная академия с.-х. наук им. В. И. Ленина, Ленинградский филиал, 1937. 104 p, (Всесоюзная академия сельскохозяйственных наук имени В. И. Ленина. Всесоюзный институт растениеводства. Госсортосеть).
[The Sojabean and is varieties].

Tropical and Sub-Tropical Crops.

CAMPESE, O Colture tropicali e lavorazione dei prodotti. Milano, U. Hoepli, [1937]. v 3 Cotone, ramiè, sisal, rosella, muse tessili, Urena lobata, Luffa cylindrica. 1937. 399 p

PEARSE, N. S Cotton progress in Brazil [Manchester, International Federation of Master Cotton Spinners' and Manufacturers' Association, 1936], XVI, 183 p.

Horticulture

ANNUARIO GENERALE DEGLI ORTICOLTORI ITALIANI, 1^a ed Pistoia, 1937. 187 p Compilé et édité par Milziade Ricci

LACHAUME, J Les champignons de couche et autres espèces cultivables culture bourgeoise et commerciale, récolte et conservation, 10^e éd., entièrement remise au point par Georges Bellair Paris, Maison rustique, [1936]. 148 p.

ZEDERBAUER, E Handbuch des Obstbaues Wien und Leipzig, C. Gerold's Sohn, 1936, 552 p

Forestry.

DE PHILIPPIS, A Classificazioni ed indici del clima in rapporto alla vegetazione forestale italiana Firenze, M Ricci, 1937 160 p. (R Stazione sperimentale di selvicoltura, Firenze).

Animal Husbandry.

THE FEATHERED WORLD YEAR BOOK AND POULTRY KEEPERS' GUIDE FOR 1937. 26th Year London, « The Feathered World », [1937] 343 p.

LINON, G Essai sur la législation française des tuberculoses animales. (Loi du 7 juillet 1933) Paris, Recueil Sirey, 1937 258 p.

NACHTSHEIM, H Vom Wildtier zum Haustier Berlin, A Metzner, [1936] VIII, 100 p

REICHSVERBAND OESTERREICHISCHER UND BAYERISCHER ZUCHT-ORGANISATIONEN FUR DAS PINZGAUER RIND Vom Schaffen der pinzgauer Zuchtverbande im Jahre 1936. Saalfelden in Salzburg, [1937] 42 p

Agricultural Industries.

CONGRES INTERNATIONAL DE SELECTIONNEURS DE PLANTES Pays-Bas 22-27 juin 1936 v [1] Rapports v [2] Comptes-rendus Publiés par M J. Sirks Leiden, M J Brill, 1936 2 vols

FRIETEMA, H J Productie en prijsvorming op de engelsche markt van nederlandsche, deensche en koloniale boter Haarlem, F Bohn, 1937 XV, 230 p. (Nederlandsch economisch instituut [Publicatie] nr 22)
[Second title in English Production and price forming on the English market of Dutch, Danish and colonial butter]

KERSHAW, S Wool from the raw material to the finished product 5th ed London, I Pitman and sons, 1937 (Pitman's common commodities and industries series)

PABST, W R Butter and oleomargarine an analysis of competing commodities. New York, Columbia university press, 1937 112 p (Studies in history, economics and public law edited by the Faculty of Political Science of Columbia University, no 427)

PELSHENKE, P. Gebäck aus deutschen Gauen. Eine Leistungsschau des Bäckerhandwerks [Berlin], Reichsinnungsverband des Bäckerhandwerks, [préf 1936]. 211 p

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MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

OLIVE-GROWING IN THE NEW WORLD

SUMMARY — Generalities — United States of America — Argentina — Chile — Uruguay — Peru

Generalities.

The olive-tree was introduced into the New World towards the end of the XVIIIth century by Spanish missionaries, who established some plantations in northern Mexico and in the south-west of U. S. A. By the end of the XIXth century, this cultivation had extended to other American countries and in recent years has attained some considerable progress particularly in U. S. A. (California) and Argentina (La Rioja).

At present, 32,000 ha. are under olive cultivation in the New World, *viz.*, 20,000 ha. or 62.5 per cent in U. S. A., and 7,000 ha. or 22 per cent in Argentina, 40 per cent of the American groves have not yet attained full production. The total number of olive trees in the American Continent is calculated at three and a half million, of which two and a half million are in bearing. The total production of olives amounts to approximately 300,000 quintals per annum and almost the entire crop is utilized for direct consumption.

The early American olive-groves are now beginning to enter into bearing, the life of the olive-tree may be divided into seven periods as follows: from 1 to 7 years (period of establishment — unproductive); from 8 to 10, 11 to 15, 16 to 25, 26 to 35 (periods of growth during which the average annual production of olives per tree and according to period amounts to 1.8, 2.6, 3.2, 6.8 kg.); from 36 to 150 years (period of maturity — tree in full bearing, the average yield in olives being 13.5 kg. per annum; from 150 to 300 years (period of decline, with decreasing and irregular yields).

The American countries have constituted one of the most important markets for the olive oil produced in the Mediterranean countries, in consequence of the intensive immigration of Latin peoples to the New World, and even to-day America is the principal market for this product. During the period 1915-1925, out of a total world stock of 1.8 million quintals of olive oil, America absorbed over a million quintals, or 56 per cent. of the total exports; during the period

1925-1930, out of an average of 2.5 millions quintals exported, the New World imported 1.5 million quintals, or 60 per cent.; finally during the period 1931-1936, the average world exports of olive oil amounted to two million quintals of which 1.1 million or 56 per cent. have been imported for American consumption. Of the total imports of olive oil into the continent of America, 80 per cent. is absorbed by U. S. A. and Argentina.

America has also become an important market for table olives, as out of an average world export of 500,000 quintals, America absorbed 300,000 quintals or 60 per cent.

World olive-growing is almost entirely concentrated in the countries of the Mediterranean Basin In many countries, this cultivation is of considerable and ever increasing importance, in spite of the difficulties now affecting olive growing and the production of olive-oil

World production of olive oil varies considerably from year to year; from a maximum of 13 million quintals obtained in 1929, this production declined to a minimum of 5 million in 1930 (ratio 1 : 2 8). The average annual production amounts to 8 5 million quintals, representing an average value of 800 million gold francs, of which 6.5 million quintals are consumed in the producing countries and two million are exported.

This production is divided unequally among the different continents· Europe 7.3 million quintals; Africa 0 8 million, Asia 0.4 million. The quantities of olive-oil produced by America and Oceania are insignificant

A decided impulse has recently been given to olive-growing in America, and considerable areas have been assigned offering favourable conditions for this cultivation; consequently, it may be of interest to give a brief survey of the conditions, organisation, progress and future prospects regarding olive-growing in the American countries which in order of importance are the following U. S. A , Argentina, Chile, Uruguay and Peru

U. S. A.

U. S A. olive-growing is almost entirely concentrated in California, where 20,000 ha. are under cultivation, *i. e.*, 97.6 per cent of the total olive-growing area in the States. Recently, some plantations (350 ha) have been established in certain countries of Arizona and Texas

The olive-tree may be cultivated in a number of regions situated in the south-west of U. S. A , characterized by a dry, hot climate in the summer and not usually experiencing frosts in autumn. Although the olive shows an excellent growth also in the humid regions of the south, wherever temperature conditions are satisfactory, fructification is not really sufficient to justify planting, the olive tree being little resistant to humid conditions. The olive is none the less cultivated from the Mexican frontier up to and including Shasta County bordering the most northern county of California, and its northerly limit thus approaches 45° latitude.

To facilitate the study of the olive-growing zone, it is convenient to treat it in the 5 natural sub-divisions, which are: (1) Sacramento Valley, the principal cultivation centres being Oroville, Fairoaks and Corning; 5,600 ha. are under cultivation in this valley; (2) San Joaquin Valley, including the main area of cultivation being to the south-east in Tulare county, the total area planted reaching 4,400 ha.; (3) Central part of the Californian coast (San Francisco Bay), where the cool, moist sea winds which prevail during the summer months in the greater part of this region tend to cheek extension, 5,200 ha. are under cultivation; (4) South California, where the oldest groves are to be found, the principal production centres being Los Angeles, Riverside, Ventura and San Bernardino. Plantations have recently been established in the Imperial Valley, which offers suitable conditions for cultivation; the trees cover a total area of 4,400 ha.; (5) Arizona, where recently, 245 ha have been planted, chiefly in the Maricopa county.

The total number of olive trees in the olive-growing zone amounts to 2,180,000, of which 620,300 growing in the Sacramento Valley; 482,500 in the San Joaquin Valley; 546,000 in the central region of the Californian coast; 495,000 in south California and 36,200 in Arizona; 23 8 per cent. of these trees have not yet become productive.

The groves were established for the most part on sandy or stony marls, reddish, dark or grey, derived from alluvial deposits of ancient valleys. These soils are friable, well-drained and darkened by a high proportion of humus. Consequently, the soils are fairly fertile, especially as the application of fertilizers to olive trees has become a universal practice in California The best olive-groves have been established on mountain slopes and low hills, in a ventilated position, with slightly stony soils of medium consistency.

The planting distance generally observed is 8 metres in all directions, however, groves are occasionally found with a planting distance of 10-13 metres, chiefly when the olive tree is grown in association with other crops, generally the grape-vine, deciduous fruit trees or annual crops

The Californian olive-grower gives considerable attention to his groves, as experience has shown that -contrary to the custom adopted in the traditional olive-growing countries—a good, regular and constant harvest may only be obtained by adopting careful cultivation methods and by supplying the soil with the nutritive elements necessary for the growth of the tree Approximately 85 per cent of the plantations in California and all in Arizona are irrigated, with the result that a larger sized fruit is obtained, a very desirable advantage, as almost the entire production is intended for direct consumption.

Towards the end of the XIXth century, some hundred varieties from Spain, Italy and France were introduced, mainly for the production of oil, and were acclimatized to the country. Owing, however, to the progress made by the American industry of edible vegetable oils and the fact that olive oil could not compete with these oils in price, the olive trees originally intended for oil production were grafted with varieties yielding table olives, and consequently transformed into trees bearing fruit for direct consumption. At present, the principal varieties cultivated number about twelve, among which the most important are: " Mission ", " Manzanilla ", " Sevillana " and " Ascolana " which cover 80 per cent. of the total area under cultivation. The most cultivated and valued varieties of to-day are " Mission " and " Manzanilla ".

The " Mission " variety was brought to Mexico by the Spaniards towards the end of the XVIIth century, and from there a century later it passed to the United States, where some missionaries—hence the name—planted this variety in the mission grounds at San Diego. According to the description given by American scientists, this variety is probably *Olea europaea hispalensis*, Cl. This variety is now the most cultivated in California and the fruit is suitable both for extraction of the oil and as a table olive as which it is chiefly used.

The " Manzanilla " variety (*Olea europaea pomiformis* Cl.) was introduced from Spain, where it is considered unsurpassable as a table olive, although the greater part of the fruit is utilized for oil production. The fruit is very palatable having much pulp of very fine quality and a small stone. The ratio between pulp and stone is approximately 7:1 In America, it is considered inferior to the " Mission " variety owing to the pulp being less firm and to its lower yield in oil.

The " Ascolana " variety was imported from Italy, and is evidently the " White Olive " of Ascoli, and is culivated chiefly in Le Marche and Umbria. Among all the varieties cultivated in California, this produces the largest fruits, generally weighing 65 to 95 a kg , intended exclusively for direct consumption; the fruit, which is very soft, necessitates special care in manipulation

The " Sevillana " variety (*Olea europaea regalis*, Cl) originates in Spain, where it is cultivated in the neighbourhood of Sevilla, the fruit is large in size and is greatly in demand for the pickling industry. In America, this variety is known as " Reina ", as in California, a larger fruit is produced than in Spain. The number of olives to a kilogram varies from 70 to 130; the general average being 100.

The majority of Californian olive-groves were established from cuttings, a practice also generally adopted in Spain; the cuttings are sections of branches at least three to four years old of varying lengths; they should be as straight as possible and be cut from healthy branches and with the bark intact Pruning is a suitable opportunity for obtaining cuttings, which, after removal of the smaller branches and twigs, should be kept in a sheltered place or more effective still, covered with a layer of moist sand. Planting may be carried out direct in the grove or first in the nursery for later transplanting Planting period is towards the end of winter and the length of the cuttings may be from 10 to 60 cm. This system of propagating the olive is one of the most economic and renders grafting unnecessary; although this latter practice has become fairly general for transforming varieties yielding fruits suitable for oil extraction into varieties giving table olives, *i. e* , to replace trees bearing small fruits with those producing large olives.

Considerable attention has been given to pruning, with a view to obtaining trees with short trunks making the gathering easier and also ensuring a well-shaped tree; at present, an endeavour is being made to produce the main branches at a distance of 50-60 cm. from the soil; however, no systematic pruning or manurial experiments have been carried out on the olive tree, although both pruning and manuring are practices in ordinary use in American olive-groves.

The harvesting of the fruit, degree of ripeness, transport and manipulation have been the object of constant study, as olive-growing now plays an important part in U. S. A. fruit industry and trade. The fruit is harvested as soon as it attains full growth or when it develops a light yellow colour indicating approaching maturity; the skin however should not be coloured

After harvesting, the fruits are transported in cases to the factory where they are classified and sorted according to size. All fruits having a diameter of less than 9/16 inch are used for extraction of the oil and the fruits axceeding this dimension are prepared for direct consumption. The preparation of bottled green olives does not differ from the methods generally employed in Spain and other countries; the fruit should be harvested when it develops a light yellow colour and special care is essential in harvesting. transport and manipulation in order to reduce to a minimum lesions and bruises even of the slightest kind; the olives are placed in casks of wood or reinforced concrete, the usual measurements being 90 cm. in width, 60 cm. in depth and from 2.40 to 2.70 metres in lenght. *Olivin*, a bitter resinous principle, is then removed by means of maceration in water frequently renewed or in lyes (solution of commercial potash and common soda at 28-30° Baumé). When action is complete, the olives are well washed in plenty of water; to prevent blackening care is taken that the fruits are not in contact with the air; they are left for 4 hours in fresh water, which is renewed until it remains perfectly clear. Following this treatment, the olive turns a fine green colour, is sweet, perfumed, and slightly oily; it is not however possible to maintain it in this condition, and salting is necessary. Consequently, the prepared olives are immersed in a solution of common salt at 5° Baumé. The best quality softened and salted olives are packed in small casks and crystal bottles of different shapes. The largest fruits obtain the best prices in trade. The Californian pickling industry previously adopted the following grades: (1) Fancy, all fruits having a diameter not less than 15/16"; (2) Extra Large, fruits with a diameter not less than 13.2/16"; (3) Large, fruits having a diameter not less than 11.6/16"; (4) Medium, fruit with a diameter of not less than 10.2/16"; (5) Small, fruits with a diameter not less than 9/16". In recent years, the following grades were adopted and are those now generally used. Medium, Large, Extra Large, Mammoth, Giant, Jumbo, Colossal; the number of olives of these grades forming a kilogram are respectively: 249 - 216 - 180 - 132 - 132 - 110 - 88.

The method adopted for the preparation of black olives is similar to the above-described process; only the fruit must be harvested when fully ripe, *i. e.*, when it acquires the characteristic dark violet colour and – unlike green olives – may be exposed to the air during treatment. Seasoned olives are also prepared, among other seasonings, garlic, pepper and vinegar being successfully used. Dried olives are prepared, by either preliminary scalding or placing then directly in brine vats variously aromatized. Following this treatment, they are spread on wicker trays in the sun, and frequently turned until they become wrinkled and completely dried. For preparing this type of olive, the fruits are collected when they have turned a complete black colour.

The Hygiene Commission of California State has recently decided that all olives intended for direct consumption shall be maintained at a temperature of 120° C for a period of 40 minutes in order to ensure complete sterilization.

Up to the end of the XIXth century, practically the entire American production of olives was used for oil extraction. On the establishment, however, of the edible vegetable oil industry in the country, especially the cotton-seed oil industry, olive oil could not compete in price with these oils, and consequently, transformation was effected by grafting the trees with table varieties, and 300,000 quintals of olives are now produced annually, yielding fairly remunerative returns for the grower.

Originally, cotton-seed was utilized for fertilizers, however, with modern methods of oil refining, this product gave rise to an industry of considerable importance, and to-day cotton-seed plays an important part in the movement of industrialisation of the Southern States. Not only does this product contribute from 1/6 to 1/10 to the gross return of the cotton-grower, but it also forms the basis of an important industry now controlled by five or six large companies which exploit the numerous factories established in the south of U. S. A. The present production of cotton-seed amounts to approximately 50 million quintals from which is obtained an average of 15 million quintals of edible oil employed in making margarine, lard substitutes, and as table oil or in manufacture of soaps. In recent years cotton-seed oil has been sold as " salad oil " at a price 120 per cent. lower than that of olive oil.

Cotton-seed dominated the North American market up to 1920, however, since this period other vegetable and animal oils such as groundnut, soya, maize and whale oils, as well as copra, palm, palm-kernel oils imported in considerable quantities in recent years.

The present production of edible vegetable oils in U. S. A. may be estimated at 20 millions quintals, of which 12 millions intended for consumption and 8 millions for the soap industry, without taking into account the annual import of 3-4 million quintals. On the other hand, olive oil production is very small, only 10,000 quintals, and the annual imports of this product amount to some 600,000 quintals, comprising 350,000 quintals of edible oil and 250,000 quintals of oil from the husks extracted by carbon disulphide, for industrial uses.

The greater part of edible olive oil is imported in 5 - 2 - 1 - ½ and ¼ gallon tins. The oil obtained from the husks for industrial use is generally imported in cans of 50 and 100 kg. The total annual consumption of edible oil in U. S. A. amounts to 10.7 kg. per capita, while olive oil consumption only attains 0.2 kg. per capita a year. Olive oil is considered a luxury by the majority of Americans as the price is 120 per cent. higher than that of animal and vegetable oils available on the market.

The diseases and insect pests which attack the olive tree are few in comparison with those found in the countries where olive-growing is traditional and also in relation to the pests which attack the majority of fruit trees in California. Among the insect pests, the black scale (*Saissetia oleae*, Bern.) is the only pest of any importance, and among the diseases are olive knot (*Bacterium savastanoi*, E F S.) and olive leaf blotch (*Cyclonium oleaginum*, Cast.).

Different research workers of the University, the Experiment Station, the Agricultural Service of California State, and the U. S A. Department of Agriculture (W. V. CRUESS, T. BIOLETTI, W. T. HORNE, M. A. JOSLYN, H. E. DROBISH, E. H. GUTHIER, E. O. ESSIG, C. F. KINMAN, etc.) have, in recent years given detailed studies on the olive tree and its products in a series of bulletins, circulars, articles, etc. which show the interest now attaching to this cultivation and to the connected industry.

U. S. A. olive-growing should make considerable progress in the next few years, as the American market could now easily absorb the production of 250,000 hectares (30,000 hectares producing table olives and 220,000 ha. fruits for oil extraction). If olive oil were protected from competition of seed oils by means of an adequate regulation and classification of the different types of oil, it is quite possible that the Unites States would not only be in a position to meet the requirements of internal consumption but might also be able to supply the countries of central and south America, in view of the immense areas in the States that are suitable for olive-growing.

Argentina.

Olive-growing in Argentina is of very recent date At the beginning of the present century, attempts were made at the acclimatization and cultivation of the olive tree in different regions of the country, but results were not satisfactory, as plantations were established without any systematic plan and the varieties imported were not suitable for the ecological conditions of the regions for which they were intended. During the war, these plantations were completely abandoned, in consequence of the great development of cultivation of other crops, especially cereals, in the country During the post-war period, 1920-27, the high prices of olive oil imported into Argentina (240 gold francs per quintal) indicated the necessity of encouraging olive-growing in different zones of the country, where crops were being grown for which it was now difficult to obtain a market owing to the crisis which affected practically all agricultural products.

Consequently, in 1925, several varieties were imported from the olive-growing countries of the Mediterranean Basin, and were tried in especially established nurseries in different regions of the country, preliminary results were encouraging, and in consequence, the Argentine Government in 1932 promulgated and decreed the Law No 11.643 which now constitutes the fundamental basis of the development of olive-growing in Argentina.

In this Law, it is stated that the most suitable region for olive-growing is the western part of the country which comprises the provinces of Catamarca, La Rioja, San Juan and Mendoza This region was nominated the " Región Económica del Olivo " and divided into the following zones (1) The western Zone, where all the olive-groves are irrigated and including the provinces of Catamarca, La Rioja, San Juan and Mendoza, (2) Southern Zone, also irrigated, comprising the departments of Adolfo Alsina, Conesa, Pichimahuida, Avellaneda, and those included in the Rio Negro territory; (3) Central Zone, where irrigation supplements the rains, and which comprises 6 departments of San Luis province, 16 of Córdoba province, 7 of Tucumán province and 13 of Salta province; (4) Coastal fluvial Zone, dry land which includes the different departments of the provinces of Santa Fé, Entre Rios and Corrientes; (5) South-east Zone, dry land, comprising the regions of Dorrego, Bahia Blanca, Villarino and Patagones of Buenos Aires province.

In establishing this " Región Económica del Olivo ", care has been taken to eliminate all non-irrigated zones where the rainfall is less than 400 mm.

Simultaneously with the promulgation of this law, a considerable number of nurseries, subsidized by the Government and controlled by specialists were established in the aforesaid Region, for the obtaining and supply of olive plants at considerably reduced prices. The productive capacity of these nurseries was estimated at 500,000 young plants, and it was decided to distribute these plants as follows: 55 per cent or 275,000 to the 1st zone; 4 per cent. or 20,000 to the 2nd zone, 24 per cent. or 120,000 to the 3rd zone; 14 per cent. or 70,000 to the 4th zone, 3 per cent or 15,000 to the 5th zone.

Moreover, it was agreed to grant a premium for encouraging olive-growing, consisting of 50 " pesos " per hectare to all olive-growers who employed up-to-date methods of cultivation in their groves, spacing the trees at a minimum of 10 metres in all directions, carrying out the necessary working of the soil or cultivation of intercalary crops not detrimental to the plantation, as well as pruning, and where necessary, fungicide treatments. On the other hand, the Government founded the " Oficina de Control y Fomento del Olivo " for the purpose of giving planters technical information and assistance for the successful cultivation of the olive, and also for carrying out the inspection and valuation of the groves, when the planter desires to compete for the premium.

The effect of these measures was immediately noticeable and at the end of 1936, 7,000 hectares of olive plantations were already established, including 5,500 ha of plantations not yet in bearing, according to the basic principles of modern agricultural technique. In 60 per cent of the groves established, varieties intended exclusively for oil production were used; in 20 per cent, varieties yielding fruits suitable both for oil extraction and direct consumption; in the remaining 20 per cent varieties producing table olives.

In 1936, olive production amounted to over a million kgs. of which 75 per cent were utilized for extraction of the oil, yielding 170,000 kg. of olive oil.

Throughout the olive-growing region, oil refineries have been established and installed with the latest apparatus, and are capable of dealing with 20 times the present production in olives

Argentine imports in olive oil have shown a marked decrease in recent years, a decrease almost exactly corresponding to the increase in Argentine production of edible vegetable oils. In fact, Argentine vegetable oil production has practically trebled during the last 10 years (200,000 quintals in 1926 as against 574,000 in 1936), while during the same period, olive oil imports have declined nearly 100 per cent (525,000 quintals imported in 1926 as compared with 318,000 in 1936). Olive oil is imported chiefly from Spain and Italy. The total consumption of oil in Argentina is estimated at 850,000 quintals, including 60 per cent. seed oil, or 7.3 kg. per capita a year. From 1930, the production of edible vegetable oils show an average annual increase of 50,000 quintals; consequently, if this rate of increase continues during the next few years, Argentina will within 5 years nearly achieve self-sufficiency in respect of vegetable oils.

The high prices for olive oil reached during the post-war period were the principal cause of the remarkable advance made by the Argentine vegetable oil industry. Moreover, the improvements obtained in the refining processes made it possible to utilize a large number of vegetable fats, which have also been used for mixing with olive oil. The seeds chiefly used for the production of edible vegetable oils in Argentina are: cotton, groundnut, turnip, sunflower, maize, etc. The processing is carried by out by some 50 factories situated at different points of the principal production centres. The vegetable oils produced are so similar that it is possible to vary their proportion in admixtures, according to the requirements of the consumer and the market prices. This fact, which is an advantage for the manufacturer and the consumer, often represents a disadvantage for the growers of any particular seeds. Larger or smaller quantities are bought up according to price fluctuations, but apart from this occasional disadvantage, the Argentine edible oil industry is the cause and mainstay of a far-reaching agricultural activity

The prospects for a further development of Argentine olive-growing are fairly encouraging, as there is an immense zone suitable for this cultivation, and good planting material is available, obtained from the different olive-growing regions, which, under favourable conditions, can supply half a million plants per annum. This corresponds to an annual production—once the trees come into full bearing— of 5 million kg of olives, moreover, by the establishment of olive mills equipped with up-to-date apparatus and specially skilled workers recruited locally, full advantage can be taken of the good conditions prevailing for this cultivation and for the industry arising from it.

Chile.

Chilian olive-growing has only attained some progress in recent years in consequence of the decision taken by the Government to establish olive-groves in the provinces of Colchagua, Aconcagua, Talca, Atacama and Coquimbo, where vast zones, chiefly in the coastal region, are suitable for olive-growing both as regards climatic and soil conditions

In 1936, the number of hectares under this cultivation amounted to 1923, including 218 ha. of plantations not yet in bearing, with an annual production of 15,000 quintals of olives and a yield of 2,500 quintals of oil. Of the olives harvested 30 per cent. are intended for direct consumption. The number of olive trees totals 224,000 including 29,500 which have not yet come into bearing, which corresponds to an average of 111 trees per hectare cultivated.

In order to encourage olive-growing in the country, the Government has granted tax exemption for a period of 20 years in respect of newly established groves, and has also started a competition among olive-growers, prizes being awarded for the best methods of cultivation adopted. The agricultural Services have in addition organized itinerant courses and practical demonstrations on the cultivation, manuring and pruning of the olive tree throughout the olive-growing region of the country. In spite of these measures, progress is very slow.

In 1925, thirty varieties were imported, chiefly from Italy and Spain for trial in the twelve nurseries established at that period. After different experiments, the Department of Arboriculture published a list of the varieties most suitable for adaptation to the pedological and ecological conditions of Chile and giving good yields; these varieties are, for direct consumption: " Gordal ", " Manzanilla ", " Ascolana ", " Leccina " and " Santa Catalina "; the first two originating in Spain and the last three in Italy; for oil production: " Liguria ", " Santa Emiliana ", and " Grappolo ", varieties all obtained from Italy; however, the most popular varieties are " Liguria " and " Gordal ".

The oil obtained from seeds either produced in the country or imported, is gradually supplanting olive oil on the Chilian market, which until recently imported over 30,000 quintals of olive oil; imports are now reduced to 10,000 quintals obtained chiefly from Spain (82 per cent.) and Italy (14 per cent.).

In order to protect olive oil against other vegetable oils, the Chilean Government has decreed that all the oils consumed in the country shall be sold solely under the name of the seed from which they are obtained; the Government will also ensure the establishment of laboratories for the prevention of adulteration and fraudulent practices in respect of olive oil, hitherto prevalent.

Uruguay.

The introduction and cultivation of the olive in this country is of very recent date, and the experiments carried out to date do not appear to have given satisfactory results. During the period 1924-27, Uruguay imported on an average 100,000 quintals of olive oil per annum obtained chiefly from Spain (82 per cent.) and Italy (16 per cent.), to a value of twenty-five million gold francs. In view of this expenditure the Government decided to initiate trials for the introduction and acclimatization of the olive tree in the coastal regions, where the climate is warm and dry, and usually without autumn frosts. The experiments carried out so far have not given the results expected. At present, 800 hectares are under cultivation with an average yield of 10,000 quintals of olives per annum, almost entirely intended for direct consumption.

Although measures have been taken by the Government for encouraging olive-growing in the country and for planting some 30,000 hectares, capable of producing sufficient oil for national consumption a few groves only have been established, mostly for experimental work.

Peru.

Olive-growing in Peru is still in the experimental stage, carried out chiefly at Ilo (Moquegua), Camana and Yauca (Arequipa), where trials were carried out with Spanish varieties, principally " Gordal " (*Olea europaea regalis*, Cl.) and "Manzanilla" (*O. e. pomiformis*, Cl.) which appear to give satisfactory results in Arequipa.

An experiment station is now being established at Ilo, which will deal with all questions relative to olive-growing and the connected industry. The groves now in production give high yields, as irrigation and the application of guano is generally adopted. Some groves, although the trees are only 15 years old, already yield 300-400 kg. of olive oil per hectare, a very high figure, considering the age of the trees. Groves have also been recently established at Ica (Ocucaje).

At present, olive-groves cover an area of 500 ha. which produce 6,000 quintals of olives, intended for the most part for direct consumption. The number of trees in bearing totals 46,500, and growth is satisfactory.

The Government is about to establish a regulation on oils, as owing to Peru being a producer of seed oils, chiefly cotton-seed oil, it is necessary in the interests of olive-growers that olive oil should be sold in the pure state.

The oil yield of the olives is fairly high, attaining an average of 25 per cent. Eight oil refineries provided with modern equipment have been recently established.

The pests and diseases causing the most damage to the olive tree, and which have been determined and controlled by the technical Institutes of Uruguay, are: " gusanera del olivo " (*Diaphania quadristigmalis*)," quereza negra " (*Lecanium oleae*) and sooty mould of the olive (*Fumago vagans*).

Peruvian imports of olive oil—as in other American countries—show a slow and gradual decline in recent years. The present consumption of olive oil in the country is insignificant (4,500 quintals) which corresponds to only 0.1 kg. per capita per annum.

The probabilities of a further development of olive-growing in Chile, Uruguay and Peru are relatively less favourable than in U. S. A. and Argentina. However, these countries could always produce—by means of suitable legislative measures to protect olive oil from present adulteration practices, -sufficient oil to meet national requirements which may be estimated at 100,000 quintals per annum.

Other countries of the American continent have also recently carried out experiments with olive cultivation, particularly Brazil (State of Rio Grande do Sul) and Mexico (northern region of the country), but the results obtained so far do not encourage anticipations of future development.

A. PASCUAL

SECONDARY RUBBER YIELDING PLANTS OF THE CAUCASUS REGION AND OF CENTRAL ASIA

Until recently, the name of rubber plant was confined to certain tropical trees and the hevea tree in particular. A plant growing in the subtropical regions—guayule (*Parthenium argentatum*)—was however also known and utilized in the wild state for rubber production. As hevea cultivation is localized in the possessions of one or two of the principal European countries, the other nations, fearing the establishment of some kind of monopoly, initiated research work with a view to discovering other rubber yielding plants, particularly those acclimatized to temperate countries. These experiments were carried out chiefly in the United States and U. S. S. R. Up to the present, practically no successful results have been obtained, and it came to be believed that the accumulation of rubber in the plants depends entirely on the action of the tropical sun. Recent studies made in U. S. S. R. have completely changed this aspect of the problem, and point to the possibility of establishing on a wide scale, plantations of new rubber yielding plants now considered as secondary plants in regions having a temperate and even cold climate.

Russian research workers have studied over 130 plants pertaining to widely differing families with a view to their acclimatization to the climatic conditions of Central Asia and the Caucasus region for the production of rubber. The results of analyses for the determination of the latex content of these plants naturally varied very considerably. However, according to these results, the cultivation of some of the plants appeared to show some prospect of success. Chief among these plants are.

Guayule (*Parthenium argentatum*), Eucommia (*Eucommia ulmoides*), some plants belonging to the Scorzonera (Tau-Saghyz) and Taraxacum (Kok-Saghyz and Krym-Saghyz) genera, *Apocynum venetum* (Kendir), *Asclepias cornuti* (Vatocnik), Chondrilla and Solidago.

Among these plants, the first and the last mentioned appear to be the most important and will be studied in detail. The other plants will be limited to a brief description as one group which be called the secondary group.

(1) SECONDARY GROUP.

The Kok-Saghyz is a perennial, herbaceous plant belonging to the Taraxacum family. It is found growing wild very sparsely at fairly high altitudes from 2,000 to 2,300 metres on the headlands of Tian-Chan. Cultivation experiments were commenced at the end of 1932 and good results were obtained. The cultivated plant fructifies at the end of the first year of growth and may then be utilized for obtaining the rubber.

Under natural conditions, the plant may accumulate up to 20 per cent. and even more of rubber; the rubber is localized in the roots and arranged in the form of long filaments.

The Krym-Saghyz also pertains to the family Taraxaceae. In the natural state, this plant is only found in Crimea. Cultivation began in 1932, and the preliminary experiments also showed good results. By calculating the quantity of seed of 500 plants per ha., a yield of 0.15 to 0.20 tons of rubber per ha. is expected.

In order to obtain the rubber from the roots of Kok-Saghyz and Krym-Saghyz, it is sufficient to reduce them to a fine powder which is macerated in water. The rubber separates out from the other matter by gravitation. The quality of the rubber thus obtained although slightly inferior to the rubber obtained from other plants, is quite satisfactory. A detailed study is now being made on all problems of cultivation technique regarding the propagation of these two plants. It has already been verified that the plants require well-ploughed and cleared soil; preference is given to land which has lain fallow for two years, ploughed to a depth of 25 to 30 cm. The seeds are sown in rows 60 cm. apart. During cultivation, weeding is frequent in order to maintain the soil in a thoroughly cleaned condition. In excessively humid regions, in order to prevent rotting of the roots, the seeds are not sown directly in the field, but in a nursery, preferably in late autumn. The existence of any special diseases or insect pests has not yet been observed. However, the plants are often attacked by other commonly known pests.

The Kendir (*Apocvnum venetum*) is a perennial plant found growing wild on the banks of rivers in Northern Caucasus, Central Asia and Transcaucasia. The first cultivation trials date back to 1928, when successful results were obtained. The plant is not exacting as regards soil and climate, but requires special care during the first two years (irrigation, weeding, protection against cold). The plant may be cultivated uninterruptedly over a period of about ten years. The stems are harvested twice a year, beginning in the third year: a normal harvest is from 2 to 2 ½ tons per cutting or 4 to 5 tons per ha. a year. The rubber is localized in the leaves which may contain from 0.5 to 8.5 per cent.

The woody parts of the stems may be utilized as construction and isolation material, and also for obtaining furfurol

In 1934, 2,000 ha. were cultivated with Kendir. In 1937, this area was increased to 10,000 ha. Kendir is attacked by certain diseases One caused by a *Septoria* destroys the woody tissues, another due to *Melampsora apocinii* affects the leaves.

The Vatocnik (*Asclepia cornuti*) was exported from North America to Ukraine for the purpose of textile manufacture. These experiments having proved unsuccessful, cultivation was discontinued and *Asclepia* became a weed At present, attention is again being drawn to this plant and experiments have been started with a view to its utilization in the production of honey, paper and also rubber. The rubber is localized in the tissues of the leaves and of the ovules in the proportion of 2 to 10 per cent. This rubber is of a rather mediocre quality owing to the high resin content.

The Chondrilla is an herbaceous perennial which is diffused chiefly in the semi-desert regions of Crimea, Northern Caucasus and Transcaucasia.

The most widely spread varieties are: *Chondrilla ambigua*, *C. juncea*, *C. pauciflora*, and *C. brevirostris*. These plants are of little importance from the economic point of view, although they should receive mention as they were the first rubber-yielding plants studied by the Government with a view to possible utilization. The rubber is localized in the tubers of the roots which contain up to 2 per cent. and in the protective tissues which yield up to 6 per cent. The total harvest of the tubers amounts to 1,000 tons per annum. There is a rubber factory at Kasakstan, but this production does not appear to have any future prospects.

In 1931, a scientific expedition explored the regions of Northern Caucasus with a view to discover rubber-yielding plants. In the course of these studies, 120 plants were examined, including 35 wild plants and 15 cultivated. Examination was both anatomical and microchemical. By this means, it was possible to ascertain the presence of rubber and to determine the parts containing the rubber. The following plants showed the highest yields:

Jurinea levieri (in the roots)	6.08 %
Euonymus europea (in the roots)	5.16 %
Senecio doria var. *macrophyllus* (in the leaves)	3.10 %
Senecio nemorensis (in the leaves)	2.00 %

High resin contents (on an average 47 per cent) were observed at the collar of the roots.

Further studies carried out in 1932 confirmed the preliminary results obtained; 7.88 per cent. of rubber was found in the roots of *Jurinea levieri* and 54.16 per cent. of resins. The utilization of these plants is a difficult matter as they are generally found growing on cliffs not easily accessible and in very limited areas. The acclimatization of this species on the uplands is being considered.

(2) *SOLIDAGO*.

Solidago was introduced into U. S. S. R. by Vavilov; the first samples came from Florida and important results were obtained following a year's study at Sukhum Botanical Institute. At present 125 varieties of Solidago are differentiated and are found chiefly in North America; only 5 varieties are known in Europe: *S. virgaurea* (Golden-rod), *S. canadensis*, *S. altissima*, *S. alpestris*, and *S. serotina*. The first two varieties are found growing wild in U. S. S. R. The ecological characteristics of the varieties of Solidago vary very considerably. Some varieties prefer dry, sandy and stony soils, while others flourish chiefly in marshy land. Another group is found growing in the moist or dry pine forests of the mountainous regions. The habitant of one variety lies in the alpine grassland zone.

(a) *Morphological description.* — The Solidago species are herbaceous, perennial plants having a single or slightly branched straight stem, occasionally woody at the collar. There are two types of roots: some are very long and wide spreading, others are compact. The length of the stalk varies, according to varieties, from 30 cm. to 2 m. The leaves are sessile or petiolate, entire or dentate, differing from each other not only in shape, but also in size and rubber content. The inflorescence takes the form of a pyramidal or sub-umbellate cluster. The flower-heads are yellow in colour. The female flowers are always ligulate, while the tubular flowers are hermaphrodite. The fruit is faceted or round, with a tufted end, and 2 to 5 mm. in length. *S. leavenworthii* and *S. serotina* are the two varieties most commonly found in U. S S R. The former has a single straight stalk which attains a height of 2 m ; the root system is considerably developed and very ramified; the leaves are small and finely indented; flowering occurs late, in September or October.

The second variety has a higher rubber content; the stem is single and a bluish or greenish iron grey in colour The stalk attains a height of 50 to 80 cm.; the root system is well developed; the leaves are large, rounded, indented and acute; the upper leaves are sessile and the lower, petiolate.

(b) *Biology of the plant.* — The germination of the seeds which depends on their quality takes place generally within seven to fifteen days The first and the second pair of leaves are formed during the second fortnight, then the stem and the leaves grow intensively for three months, after which period elongation diminishes rapidly and finally ceases The varieties are classified under three groups according to the number of days extending from planting to flowering. (1) early varieties (117 to 150 days), (2) moderately early varieties (165 to 200 days); (3) late varieties (240 to 260 days). The duration of the flowering period varies from 25 to 75 days. The end of the vegetative cycle is accompanied by the yellowing of the leaves which fall at the beginning of winter (in December at Sukhum) Growth recommences in March Beginning from the second year, the plants show a higher rubber content.

(c) *Methods of cultivation.* — The methods of cultivation are simple The seeds sprout very quickly in February, in green-houses or in seed-beds, from the 10th to the 15th day, the seedlings are pricked out; subsequently, 20 to 25 days later, when the plant has already 6 or 7 leaves, transplanting is carried out. The ground, which is to be used for several years, should be well prepared in autumn and ploughed in spring The young plants are set by hand, adopting a spacing of 75 cm. in all directions for *S. leavenworthii*, and a slighter lower figure for the other varieties. The transplanting is generally successful, cultivation care consists of weeding and hoeing, and when necessary, the plants are propped. In order to increase the amount of green material and bring about further branching, the plants are topped at a height of 10 to 15 cm. at the beginning of summer.

Unequal ripening of the seed makes harvesting troublesome. Collection must be carried out by hand and repeated several times. The seeds are threshed, placed in sacks and stored in a dry locality.

All cultivation work, apart from harvesting, may easily be carried out by machinery.

(d) *Propagation trials.* — The propagation of Solidago is of primary importance in successful cultivation experiments. Consequently, considerable study was given to the determination of the most effective propagation method. So-far, multiplication by roots and multiplication by cuttings have been tried successively. In the first method, the plants are dug up and the roots are divided into a certain number of more or less equal parts. This method has the merit of giving a sure and rapid root-setting, but presents the considerable disadvantage of resulting in a very small number of new plants, as each primary bundle of roots may only be divided into a maximum of 20 secondary lots, thus forming 20 new plants.

However, by means of cuttings, mass reproduction is possible. Either stem or root cuttings may be adopted. In the first, the slips are taken 8 to 10 cm. in length, while in the second, the roots are cut into pieces each with one to three eyes. Experiments have shown that rootlets were obtained at the end of the 25th day. Propagation by cuttings should be carried out very rapidly. The cuttings are planted directly in the nursery, careful attention being given to shading and watering. Transplanting takes place at the end of 25 days when the slips have taken root satisfactorily. In Florida, Solidago is propagated entirely by cuttings, and up to 500 plants may be obtained from one mother-plant In U. S. S R , to-date only 200 have been obtained, but, by giving special treatment the shrubs with a view to their propagation, it is hoped also to attain the figure of 500.

(e) *Diseases and insect pests.* - In Florida, Solidago plants suffer considerable damage from cryptogamic diseases and the attacks of parasitic insects. No insect pests attacking this species have been observed in U. S S. R., but at Sukhum, a disease producing marks on the leaf is reported

(f) *Formation and localization of rubber in the plant* — The caoutchouc is localized in the parenchymatous tissues of the leaf and also in certain special isolated areas No definite information is as yet available on the processes involved in the accumulation of the rubber, however, the data so far obtained show fairly clearly that the formation and accumulation of caoutchouc is produced mainly at the time of the ripening of the seeds. Experiments carried out in U. S. S. R. and America have shown that the rubber content of the same sample varies according to the age of the leaves, the lower or oldest leaves being those which contain the most and the upper or youngest leaves those which contain the least.

Experiments are now being carried out at the biochemical laboratories of the Sukhum Institute with a view to determining the processes involved in the accumulation of caoutchouc and resins and the influence of methods of cultivation on yield in rubber, as well as that of geographical and climatic factors. It is hoped that, after determinating these points, it will be possible to obtain by means of selection, more suitable types and forms and to establish definitely by means of vegetative propagation the qualities desired.

At present, these studies are in the experimental stage and the plantations established at Otchentchiri only cover four and a half ha., of which one and a half hectares are under *Solidago leavenworthii.*

(3) GUAYULE (*Parthenium argentatum*).

The guayule is indigenous to semi-desert regions and was considered as somewhat resistant to cold, however, results of experiments carried out at Tadjikstan and Turkmen during the period 1930-1935 have shown that the plant does not support temperatures lower than – 10 to – 15° C without special attention. In some regions, accordingly, it has been possible to maintain plants even at a temperature of –20° C by subjecting them to a special " pre-wintering " treatment.

Guayule may be cultivated in certain arid subtropical regions, in desert zones and the steppes on grey soil. The most suitable conditions are found in the Karakalinsky region in Turkmen and the valleys of Sumbasky and Tchandyrsky. At present, the greater part of research work is being centred in Azerbaydjan and Central Asia. Studies are carried out at the Kara-Kalé Rubber Experiment Station.

In consequence of experiments and research work effected up to 1935, it has already been possible to obtain two pure lines of Guayule from the varieties *angustifolium* and *argentatum*. These two strains have yielded an average of 100 kgs of rubber per hectare, and cultivation has increased. These two types are designated " Uzkolistnaja " and " Serebristaja ".

Plants of the variety *angustifolium* make a spreading, compact growth, nearly spherical in shape. The leaves are narrow, slightly elongated and indented. Plants grown at Marguchevany contained at two years old from 6 to 7 per cent. of rubber.

The *argentatum* variety is much rarer in its original form. Selection work was carried out on a few specimens found, by A. V. ASTROV, who collaborates in the work of the Experiment Station of East Caucasus. These specimens were subsequently forwarded to the Marguchevany Station for propagation. The plants pertaining to this variety grow tall, the shrubs taking the form of an inverted pyramid. In 1935, during the course of preliminary experiments with this variety, a yield of 113 kg. of rubber per hectare was attained. Further results obtained from strains produced from this type confirmed these previous results.

A few examples of the *crispatum* variety are to be found, but are very rare, and selection work has only been carried out on a few specimens at Kara-Kalé by S. F. BORISSENKO.

The shrubs of this variety show a low broad growth much branched; the leaves are a peculiar shape: wide, lobed and wavy; small ears are found at the base. According to the preliminary results obtained in the nursery with this variety, production would compare favourably with that of *angustifolium*, but would be inferior to that of *argentatum*. A yield of 62 kg. per hectare was attained.

(b) *Characteristics required in selection.* — In previous research work, endeavours were directed solely to obtaining strains having a high rubber yield. Attention is now being given to developing large-sized shrubs and obtaining a considerable quantity of dry matter. In 1935, it was possible at the Marguchevany Station to obtain shrubs yielding 62 to 71 gm. of dry matter and having at the same time a rubber content of 5 per cent. At Kara-Kalé, 60 gm. of dry matter were obtained in the 3rd year; 130 and even 155 gm. with average rubber content of 5.3 per cent. were also attained. Results showed that yield in rubber was considerably higher with plants two years old. The figures obtained at the Marguchevany Station are given in the following table:

TABLE I. — *Yield in rubber per hectare.*

(According to the results obtained at Marguchevany).

Pure strains from the *angustifolium* variety	One year old plants (in kg. per ha)	Two year old plants (in kg per ha)
4 348	85 1	149.7
4 334	82 3	104 3
1 852	78 9	115 1
4 324	69 6	186 3
1 851	68 5	175 6

An attempt has also been made at the Marguchevany Station to obtain by selection, types resistant to frost. Results show that the only means of increasing resistance to frost is by crossing guayule plants with other species having a higher resistance. Origan has been selected as being twice as resistant as guayule. The two plants are easily crossed and the resultant product is fertile.

(c) *Seed production and yield in rubber.* — Generally, in U. S. S. R., uncultivated guayule plants produce insignificant quantities of seed; at Marguchevany, it was possible to obtain from 20 to 30 kg per ha. and at Kara-Kalé, from 15 to 20 kg. only. On irrigated and well-maintained plantations yields slightly increase and may attain 50 kg. per ha. Even 100 kg. have been obtained in old plantations. It should here be taken into account that the varieties which have the highest yields in rubber produce the least seed. According to the data given by the experiment station of Eastern Transcaucasia on an average 2 gm. of seed per plant were obtained from the *angustifolium* variety, and 5 ½ gm. and 7 gm. per plant from the *brevifolium* and *prostratum* varieties which have a much lower rubber yield. The low rate of germination of the seeds is another adverse factor in the propagation of guayule by seed. On an average, 20 to 30 per cent. of the seeds germinate, but, often, this proportion does not exceed 10 per cent.

In the wild forms there is thus a negative correlation between yield in rubber and germination of the seeds. Plant breeders were not at first aware of this fact and consequently the first pure strains obtained beat all records in poor germination. In the following table are given the quantities of rubber contained in the dry matter, germination percentage of the seeds and the quantity of seed collected both from wild plants and from *angustifolium* strains.

TABLE II. — *Correlation between the yield in rubber and germination of the seed of wild varieties and angustifolium strains.*

(According to the results obtained at Marguchevany).

No and variety	Percentage of rubber in the dry matter	Rate of germination of the seeds	Quantity of seeds harvested per ha (in kg)
Obtained from wild plants·			
1825 var *angustifolium*	7.9	7.2	12.2
2280 var. *argentatum*	6.7	8.3	10.6
1849 var. *angustifolium*	6.2	15.6	11.5
1661 var *latifolium*	4.4	15.4	5.3
30 var. *brevifolium*	2.1	27.7	41.0
52 var. *deltoideum*	1.4	45.8	21.6
Strains obtained from the variety *angustifolium*			
1852	7.7	53.4	12.5
1851	7.5	49.3	15.2
4334	7.6	29.2	7.5
2415	6.4	28.3	12.1
2288	4.4	23.0	3.0
4348	6.7	15.5	13.8

The data given in Table II refer to one-year old plants; it is seen that the negative correlation *does not exist in angustifolium strains.* This fact affords plant breeders the possibility of selecting guayule varieties which make large shrubs and have a high yield in rubber and seeds of high germination percentage.

Other conflicting factors are encountered in selection breeding with a view to obtaining a higher yield in rubber and seeds. Thus, to obtain an increased quantity of rubber, the plant should have a thick stem, with the bast developed, and small branchings, while these conditions naturally imply a reduced seed production. However, these difficulties are easily eliminated in practice.

TABLE III — *Percentage of full seeds from pure strains of guayule and rate of germination.*

No and variety	Rate of germination	% of full seed	Rate of germination of hard seeds
2280 var. *argentatum*	5	41	12
1650 var. *brevifolium*	9	66	19
1661 var. *latifolium*	19	62	32
1720 var. *angustifolium*	24	61	41
2047 var. *brevifolium*	30	70	43
58 var. *latifolium*	33	58	70
97	42	52	81
133	49	62	79
206	47	57	87
57	55	65	81

With regard to germination, the seeds may be divided into two groups: empty seed and full or hard seed. Occasionally, the latter do not germinate even under the most suitable conditions. At the Marguchevany Station, the proportion of the two groups of seed and the germination percentage of the latter were determined. The results are given in Table III

(d) *Methods of cultivation* — Sowing is effected in the nursery before the winter season, the seedlings are transplanted at the beginning of spring in February or early March, when the soil is still sufficiently moist At this period, 80 to 85 per cent of the plants take root A considerably lower percentage is obtained if transplanting takes place at a later date, when it cannot be carried out without one or two waterings Cultivation care during the growth of the plants does not present any particular difficulty.

(e) *Localization of the rubber* — The rubber is found in all parts of the plant and chiefly in the roots The concentration varies according to the age of the plant; according to American statistics, at the age of 7 years, wild guayule plants would contain from 7 to 9 per cent of rubber Cultivated plants accumulate the rubber much more rapidly and a yield of 14 per cent. may be attained at the end of 5 years (these results were obtained in California)

(f) *Diseases and insect pests* - The insect pests which attack guayule plants in U S S R differ considerably from those found in America Thus, in the Crimea region, the insects damaging the roots are larvae of *Opatrum triste* and *Pedinus helopioides Melanotus brunnipes* and *Agrotis* as well as *Amphimallus solstitialis* which is the most dangerous The leaves and stems are attacked by *Calliptamus italicus*, *Oedipoda coerulescens*, *Tettigonia viridissima*, *Oecanthus pellucens* and *Loxostege sticticalis* The flowers are infested by *Podontha daghestanica* and *Omophlus lepturoides Tropinuta hirta* The north Caucasus region is infested by *Gryllotalpa gryllotalpa* and also certain ants which attack the roots

In the Kara-Kalé region, there are certain locusts (*Calliptamus italicus*) which damage the bark of the stem and some caterpillars (*Laphygma exigua*) which eat the leaves The young seedlings are often destroyed by ants

Many weeds such as Aleppo sorghum and cocksfoot grass, etc are dangerous for guayule plants as they introduce many noxious insects The most serious damage is caused by ants and butterfly caterpillars Ants may be controlled by pouring an emulsion of naphtha oil into the ant-hills or by attracting those ants which do not collect in ant-hills to host plants and subsequently destroying them by spraying with petroleum emulsions

As a general rule, the most effective control measures of guayule pests consist in maintaining the plantations and also the banks of the irrigation canals clear from all waste matter, and in the removal of all weeds.

(g) *Conclusion* — It may now be taken that the problem of the acclimatization of guayule in the Kara-Kalé and Turkmen regions no longer exists. Perennial plantations covering an area of over 200 ha. have already been established.

The question of acclimatizing the guayule has not been completely solved in the Azerbaydjan regions (Caucasus), where the autumnal rains and cold winters cause considerable losses. An endeavour is being made to protect the plants by special means which tend to render them more resistant to cold, in particular, transplanting is omitted. From the results already obtained, it is expected that in the near future, this problem will be entirely and satisfactorily overcome.

(4) EUCOMMIA (*Eucommia ulmoides*).

(a) *General observations.* — Eucommia is indigenous to Central and West China. This plant grows preferably in subtropical climates. It is found however growing wild as far as Ukraine. This species was first introduced into Russia in 1906 and systematic cultivation began in 1931 at the Botanical Garden, Moscow, and also at the Batum Experiment Station.

The plants have oval leaves from 15 to 20 cm. long and 5 to 7 cm. broad. The upper surface is dark green in colour and the lower is lighter in shade. The plant is generally dioecious, though monoecious forms are occasionally found. The oldest trees are found at Sukhum, Batum and Yalta (Crimea).

(b) *Yield in gutta.* — Eucommia is a gutta yielding plant. The gutta is found in all parts of the plant and chiefly in the leaves in the form of long filaments, which may yield up to 3-3 ½ per cent. At the Tsikhis-Dziri Experiment Station, a yield of 2.09 per cent was obtained from the dry leaves of one-year old plants. The chemist KOZLOV estimates that a normal yield of 360 kg. of gutta per ha a year may obtained. The Italian VERMUCCIO considers that this production may attain 500 kg. with older plants.

(c) *Methods of propagation* — The plants obtained from seed are always female. Consequently this method of propagation is extremely difficult For cultivation on an industrial scale, it is necessary to resort to vegetative propagation Some years ago, the Director of the Botanical Garden, Moscow, endeavoured to propagate the plants by means of green cuttings; 80 per cent of the specimens struck The young cuttings took root after 35 to 40 days. These are left in the nursery for a certain time in order to become accustomed to normal conditions. In the preliminary stages of growth, these cuttings require very particular care and considerable expense is incurred, amounting as much as 4 rubles for each cutting. At the Sukhum and Batum experiment stations an attempt has been made to transfer female plants to the nursery, with a view to forcing them after the normal pause in the vegetative cycle to recommence growth and produce fresh stems, which may be used as cuttings. This method has the disadvantage of appreciably weakening the plants as they are deprived of their natural period of rest

KUZNER has proposed a new method of propagation. This scientist observed that the roots lying near the surface of the soil easily developed new shoots at each node and that it was possible to detach these shoots and utilize them as propagation material. In spring, he advocates stripping the roots, dividing them into sections of 10 to 15 cm. (each section showing a young shoot) and planting them in well-manured beds; daily cultivation care consists of shade and regular watering. The new roots appear after 7 to 10 days. The shoots attain 0.50 m. to 1.50 m. in August and in autumn or the following spring may be used for propagation by layering.

Young shoots may be stimulated on the superficial roots by grafting. This operation should be carried out in spring before the sap begins to circulate, the buds from one year old plants may be used a scions.

The plant may also be reproduced by layering. The mode of operation is as follows: The young plants obtained from the superficial roots or by grafting of the roots or by any other means are transplanted in spring or autumn to the nursery where the most suitable soil conditions prevail.

The plants are placed at an angle of 40-45° to the south so that the sun's rays strike them tangentially. The plants are spaced 1.50 m. to 2 m. apart. The shoots are fixed in the soil by wooden hooks. The buds begin to develop after 2 weeks and produce shoots vertical to the parent branch. When these shoots attain a height of 10 to 15 cm., the branch is removed and placed in a shallow trench 7 to 8 cm. deep and covered with soil. The roots subsequently develop very rapidly. In autumn, the branch is dug up and the well-developed shoots are separated.

(d) *Influence of soil on the growth of Eucommia.* — In the spring of 1932, a series of experiments was organized at the Tsikhis-Dziri Experiment Station (Caucasus), with a view to studying the influence of soil factors on the growth of Eucommia The results of these studies are of interest not only from the theoretical but also from the practical aspect. Red soils and alluvial soils were utilized; it was found that the growth of Eucommia plants was much more vigorous in the former than in the latter type of soil. A special experiment was carried out with red soil for the purpose of determining the influence of humidity on the growth of seedlings. In this experiment, the plants received a complete application of fertilizer (3 gm. of Chile saltpetre at 15 per cent, 3 gm of superphosphate at 16 per cent, and 3.75 gm. of sylvite per plant). The humidity of the soil varied from 40 to 100 per cent.; table IV shows the results obtained.

TABLE IV. — *Influence of soil humidity on the growth of Eucommia.*

Soil misture %	Average height cm	Total leaf surface in cm^2	Dry mass of the leaves in gm	Yield in gutta %	Yield in resin %
40	3.15	89	0,70	1.38	5.20
60	4.68	188	1.47	—	—
80	28.62	901	6.93	1.16	5.1
100	47.08	1,356	12.09	0.99	5.44

It may be seen from this table that an increased moisture content of the soil stimulates the growth of the plant considerably but causes a decided decrease in yield of gutta.

(e) *The influence of fertilizers on the growth of the plants.* — During the course of the experiments carried out with red soil, the following quantities of fertilizer were applied to each plant: Chile nitrate of soda 4.2 gm., superphosphate 4.2 gm., sylvite 5.25 gm. The humidity of the soil was 80 per cent. The results obtained are given in Table V.

TABLE V. — *Influence of fertilizers on the growth of Eucommia.*

Fertilizer	Average height in cm	Total leaf surface in cm^2	Dry mass of the leaves in gm	Yield in gutta %	Resin content %
NPK	64	1,801	13.23	0.86	4.12
PN	44.3	1,072	6.27	1.51	4.94
PK	29	790	5.80	1.11	5.85
NK	18	306	2.19	1.43	5.52
Control	32	713	5.24	0.76	5.09

The above data show that the best development is obtained with a complete fertilizer, and that the highest yield in gutta is attained by the application of superphosphate and sylvite. However, it is difficult to determine the influence of any fertilizer on the accumulation of gutta from one experiment.

In 1933, a further experiment was carried out in order to ascertain the influence of liming on soils deficient in calcium in the Abkhazia region. The following results were obtained (Table VI).

TABLE VI. — *The influence of liming on the growth of young Eucommia plants*

Calcium carbonate content %	pH of the soil	Average height of the plants in cm	Average number of leaves per plant
0.25	4.9	117	30
0.50	5.4	101	25
0.75	6.7	88	22
1	7.4	76	22
control	4.3	53	16

The above table shows that the plants attain a maximum growth when the pH of the soil closely approximates 5. In another experiment it was found that the application of lime had very favourable action on the development of micro-organisms in the soil, the best results were obtained by applying 20 tons of calcium per ha.

In brief, all the experiments carried out both with regard to the action of fertilizers and also the influence of type of soil and its moisture content, have led to the following conclusions

Up to 80 per cent. humidity in the soil, a favourable action is exerted. Special cultivation methods are necessary when the ground contains stagnant water. Eroded land should not be used. Mineral fertilizers promote the growth of young plants and increase the assimilation of gutta in the leaves. The application of lime invigorates the young plants. Finally the application of lime and mineral fertilizers facilitates the development of micro-organisms in the soil.

(f) *Spread of Eucommia towards the north.* -- Mention should also be made of a very interesting experiment carried out by the Rubber Establishment No 9 (Maikop region - North Caucasus) with a view to adapting Eucommia to northern climatic conditions. Some thousand young plants were set in 1936, and although the atmospheric conditions were extremely unfavourable, the plants proved resistant In 1937, the same establishment transplanted 25,000 green cuttings and 5,000 young plants over an area of 20 ha If this year's results equal those of the preceding year, there will be considerable possibilities for the cultivation of Eucommia from the Adyguey regions to the Black Sea

(5) TAU-SAGHIZ (*Scorsonera Tau-Saghiz*).

The Tau-Saghiz is a small shrub having a flattened appearance and narrow rectilinear leaves This plant was found growing wild on the Kara-Tau Mountains (Kasakstan-Central Asia) at an altitude of 1000 to 1800 m The climate of these regions is excessively rigorous, the temperature ranging from 35° C to plus 40° C.

The area under cultivation would appear to be limited to the Kasakstan territories, in this zone, the number of Tau-Saghiz plants would be over 14 million, covering an area of 20,000 km. The first attempts at establishing this cultivation on a commercial scale began in 1930, and satisfactory results were obtained According to the third five-year plan, the cultivation of Tau-Saghiz shall be concentrated in the following regions: central part of the Ukrainian Republic, the Asof region bordering the Black Sea, central part of the Black Sea region, Moscow region, South Kasakstan and Usbekstan Plantations intended entirely for seed production are concentrated in the Ukraine, South Kasakstan and Usbekstan.

Since 1930, scientists have made a detailed study of the genetics and ecology of Tau-Saghiz, it was found that this plant could undergo considerable changes when cultivated under climatic conditions differing from those of its centre of origin, where it is particularly characterized by a long period of vegetative rest This reaction to climatic factors offers considerable future possibilities to plant-breeders and will enable them to obtain types responding to industrial and cultivation requirements, *i e*, particularly shrubs having a regular growth and arriving early at maturity, which give an average yield in rubber, and with a compact root system tending to facilitate the collection of the rubber.

(a) *Localization of the rubber* — The rubber is localized in the roots, where it is found in the form of long filaments. The rubber content of the roots may attain the considerable figure of 35 to 38 per cent. The wild plants show a very well-developed root system, the roots being slender and spreading in all directions, consequently, preliminary selection work consists in obtaining plants with a more compact root system so as to facilitate the harvesting of the rubber. The rubber is very easily extracted. It is sufficient to reduce the roots to powder and then throw this powder into water and the rubber separates out by gravitation.

(b) *Propagation methods.* — Propagation by seed is rare under natural conditions, as the seeds are destroyed by animals or insects and the young plants show little resistance to climatic conditions However, the seeds of Tao-Saghiz are quite normal and have a good germinative power; at a temperature of 15 to 25° C and the humidity of the soil being 60 per cent., germination begins at the end of 3 days and continues for about ten days Germination may also take place at lower temperatures (4 or 5° C) but is very slow. The young plants obtained from seeds show a very slow growth during the first years The usual method of propagation adopted consists in allowing the roots left in the soil when uprooting the plant, to re-develop; in fact, it was observed that the extremities of the roots remaining in the soil have the faculty of renewing growth very rapidly and easily even if they are lying at a depth exceeding 20 cm

J LEGROS

Publications consulted·

BORISSOV G. J , POPOV I G et RASDORSKY, W Th. Essais de recherches sur le caoutchouc sur la flore des régions nationales du Caucase du Nord, an 1931 — *Ordjoskonidze*, 1936, 147 p

IORDANISHVILI I K. Goldenrod, a new Soviet rubber plant — *Soviet Subtropics*, Moscow, 1935, No 11, pp. 36-41

KUPTSOV, A I. The first selected varieties of Guayula — *Soviet Subtropics*, Moscow 1937, No. 7, pp. 35-43.

KUPTSOV, A I. Tau-Saghyz comme objet de sélection. — *Bulletin of Applied Botany, Genetics and Plant Breeding* Series A, No 1, Moscow 1936, pp 103-120

KUZNER I G. and LUBINOV M. A Eucommia and new methods of propagation — *Soviet Subtropics* , Moscow 1935, No 1, pp 62-68

MAKAGON V N Rubber producing plants in the subtropics — *Soviet Subtropics*, Moscow 1935, No 3, pp. 41-48.

MIKHAILOV N. M Guayula in the arid subtropical regions of Middle Asia – *Soviet Subtropics*, Moscow 1936, No 10, pp 61

VELTISCHEW P. A. Guayula's insect pests — *Soviet Subtropics*, Moscow 1937, No 9, pp. 72-76.

ZNAMENSKI V. D. and ZNAMENSKAYA S V A preliminary agrochemical study of Eucommia. — *Soviet Subtropics*, Moscow 1936, No 2, pp. 24-29

Plantes à caoutchouc russes. — *Selisko-khoziaistvennaia Entsiklopedia* , Moscow, 1934, vol. 3, pp. 41-45.

Déplacement de l'Eucommia vers le nord — *Soviet Subtropics*, Moscow 1937, No 7, 118 pp.

BOVINE TUBERCULOSIS AND CONTAGIOUS ABORTION IN AUSTRIA (1)

I. — BOVINE TUBERCULOSIS.

Extent of the disease.

Precise figures cannot be given as to the extent of bovine tuberculosis in Austria, as complete and exact statistics on this subject are not available. Notification of tuberculosis is only compulsory in cases showing external symptoms, and veterinary statistics refer only to these forms. Consequently, the figures in the following table refer only to such cases.

TABLE I. — *Bovine tuberculosis recognizable from external symptoms*

	1931	1932	1933	1934
Number of farms where tuberculosis was reported	370	545	546	305
Total stock of cattle on these farms	3,203	4,248	4,052	3,373
Losses incurred				
animals died	15	8	2	11
animals slaughtered by request of the authorities	104	282	202	188
animals slaughtered by the owner	277	265	219	169
animals slaughtered by the owner as suspected of tuberculosis	230	228	203	116
Total losses	626	783	626	484
Losses in % of stock on infected farms	19.5	18.4	15.4	14.2

Control of bovine tuberculosis.

Control of bovine tuberculosis was practised optionally in some provinces of the country from 1898, but only became compulsory throughout the country in 1910, subsequent to the Law of 6 August, 1909 and the executive Decree of 15 October, 1909.

The system followed in the control of bovine tuberculosis includes only the forms recognizable from external symptoms, advanced tuberculosis, tuberculosis of the lungs, intestines, uterus and the udder.

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(1) This article has been based on data received from the Ministry of Agriculture and Forests, Vienna.

The animals found to be affected by these forms of tuberculosis are slaughtered, and in this case, the State pays the owner an indemnity of ½ of the value of the animals slaughtered.

When slaughtering is not compulsory or is postponed, the district authorities take measures to prevent a further diffusion of the disease. These measures include: isolation and marking of affected or suspected animals; authorization to sell the animals for slaughtering only. Also the calves of cows recognized as tuberculous should be slaughtered when 6 weeks old at the latest; the milk of cows affected by tuberculosis of the udder may not be used for consumption; in the case of some other form of tuberculosis, the milk may only be utilized after boiling; the stabling quarters of the diseased animals, as well as the implements employed in their upkeep and necessary treatment should be disinfected.

On farms where the presence of tuberculosis has been ascertained, the owner is advised to allow a 'diagnostic vaccination' to be practised on the whole of this herd; this treatment is carried out at the expense of the State, if the owner voluntarily complies with the conditions prescribed. These conditions are: Marking of all vaccinated animals; separation of the cattle showing a positive or doubtful reaction from animals giving a negative reaction; sale of diseased or suspected animals for slaughtering only; raising only of calves free from tuberculosis; periodical inspection of the stock and periodical diagnostic vaccination of the cattle and their progeny; veterinary examination and diagnostic vaccination of cattle in the stable; disinfection of the stables and implements employed.

Besides the control measures decreed by law, identification of the infection and control of contagious disease are carried out in the different federal provinces, by request of the owner who undertakes to comply with the prescribed control regulations. The Federal Ministry of Agriculture and Forests has drawn up the regulations and instructions to be observed in order to ensure greater uniformity in the control of bovine tuberculosis in the federal provinces, also granting financial assistance.

For prophylactic vaccination against bovine tuberculosis, the Calmette-Guerin B. C. G. vaccine alone is used.

With regard to export trade in live-stock, the measures in force in the different countries to which the animals are to be consigned, are taken into account.

Economic importance of bovine tuberculosis.

No statistics regarding the economic importance of bovine tuberculosis are available. It can only be stated quite generally, that the loss in meat and milk is very extensive. The vitamin values of the forage consumed by the animals affected are chiefly used up in the resistance made by the organism to the destructive influences of the disease. Consequently, this part of the food values is not finding normal utilization and goes to swell the total loss. It is not possible to give statistical data on the number and value of the animals lost as a result of bovine tuberculosis.

In order to ensure that cattle sold for breeding purposes are in sound health, a clinical and diagnostic examination is usually carried out by a veterinary surgeon, according to the best known methods, with a view to prevent the diffusion of the disease and any disputes which might arise in connection with transactions.

The public health is well protected against the risks of bovine tuberculosis. The very strict regulations for animal and meat inspection make impossible the marketing of meat obtained from tuberculous animals, or else ensure that the meat of these animals is offered for consumption only under special conditions and under the control of the authorities. Similarly for milk, the police veterinary regulations give a sufficient guarantee, as the sale of milk obtained from tuberculous cows is prohibited. Special control measures are applied to milk intended for infant and invalid feeding, and also to raw milk.

The financial assistance given by the State and the provinces for the control of bovine tuberculosis is very considerable. However, the greater part of the expenses incurred in improving the health of the herds is at the charge of the owner himself

II. — CONTAGIOUS ABORTION.

Diffusion of the disease.

Statistical information on the extent of contagious abortion in Austria is only available from 1936, as the State only initiated control measures against this disease during the second half of 1935.

During the year 1936, Bang disease was reported in 16,523 cows, distributed over 4,151 farms out of a total of 55,274 cattle kept on these farms Of these animals, 2,138 were slaughtered The percentage of infected farms is 1 2, and the percentage of animals affected out of the total stock amounts to 2 4. It was found that 30 per cent of the total number of cattle on the infected farms were diseased.

The use of communal grazing lands during the summer is one of the main causes of the spread of contagious abortion, and it may be noted that in the provinces where alpine pasturage is generally adopted, this epidemic is much more frequent than in those where the practice of communal grazing is not the rule Cases of Bang disease in certain other regions are due exclusively to the purchase of breeding animals coming from infected areas, where the system of alpine pasturage is common Whenever, either for zootechnical or economic reasons, infected cattle are not purchased in these regions, the herds are almost entirely or even completely exempt from this disease.

Control of contagious abortion.

The control of this disease in Austria is carried out in accordance with the regulations established by a special law which dates back to 1935 This law compels all stock-owners to report every case of abortion. Veterinary surgeons are under the same obligation for every case of abortion ascertained and even for suspected cases. On receipt of notification, the district authorities carry out a compulsory inspection at the expense of the State. The control itself of the disease is generally optional Stock-owners however, who undertake to carry out control measures and comply with the regulations prescribed by the State, benefit by fairly large subsidies. The actual control measures include: verification of the disease by agglutination (laboratory method, rapid agglutination of fresh blood) and the bacteriological examination of the foetus and the membranes of the foetus; separation of animals showing a positive or doubtful reaction from those giving a negative reaction, repetition of examination of the blood of the animals of the negative group after six weeks, and the separation of this group from all animals showing a positive or doubtful reaction (subsequently, examination of the blood is carried out every six months), establishment of isolation stalls for the calving of cows belonging to the positive group, and also for cows of the negative group, elimination of infected animals and particularly those recognized as carriers, periodical examination of the blood of all breeding animals, periodical examination of the blood of animals purchased and their isolation until their conditions of health have been ascertained, application of hygienic and disinfectant measures to stables and implements, veterinary treatment for diseased animals Inoculations are not allowed unless by special permission of the authorities The animals inoculated with living cultures of *brucella abortus* may be sold for slaughter only The milk of these cows requires to be boiled before consumption Bulls cannot be inoculated with living cultures of *brucella abortus*

In the trade of breeding animals, a certificate stating the animals to be free from the disease is required The making of this certificate compulsory for all stock-dealers is now under consideration

Public health in Austria is not seriously endangered by Bang disease The transmission of the disease to man through the consumption of meat from animals affected has not yet been verified Occasionally, adults have been attacked by the disease after drinking the milk of affected animals, but in most cases, the persons attacked by the disease are the veterinary surgeons and farm staff, who are constantly handling the diseased animals Very strict precautions are taken to protect consumers from a possible infection by Bang disease These precautions are particularly strict in respect of milk intended for infant and invalid feeding and for establishments supplying special milk

The financial assistance given by the State for the control of this contagious disease, as well as the subsidies granted to owners of diseased animals, are very considerable

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MISCELLANEOUS INFORMATION

XTH INTERNATIONAL CHEMISTRY CONGRESS. — The *Xth International Chemistry Congress* will take place at Rome on 15-21 May, 1938. The purpose of the meeting is to study the relation of chemistry to the different forms of human thought and activity. The scientific meetings will be held in the buildings of the new University City of Rome. The XIIIth Conference of the International Union of Chemistry will coincide with the Xth International Congress

The subjects for discussion have been divided into 11 sections

Section I *Chemistry and scientific thought* (*a*) History of chemistry; (*b*) Physical chemistry, (*c*) Inorganic chemistry, (*d*) Organic chemistry, (*e*) Analytical chemistry, (*f*) Training of young chemists, (*g*) The problems of inventors' rights (patents).

Section II. — *Chemical products of fundamental importance* (*a*) Metals, (*b*) Solid fuels, (*c*) Liquid fuels and lubricants, (*d*) Nitrogenous products, (*e*) Large scale mineral chemical industry, (*f*) Rubber, (*g*) Cellulose (*h*) Plastic materials (*i*) Building material; (*j*) Paints and varnishes

Section III — *Chemistry and the utilization of different forms of energy* (*a*) Chemistry and heat (thermotechnique, technology of fuels, etc), (*b*) Chemistry and electricity (electrothermy, electro-metallurgy, isolating material, etc), (*c*) Chemistry and radiant energy (applications of photo-chemistry, etc)

Section IV — *Chemistry and nutrition* (*a*) The science of foods (*b*) Analysis of foods (*c*) Alimentary industries

Section V. — *Chemistry, the house and clothing* (*a*) Chemistry and building — (*b*) Chemistry and decoration, (*c*) Chemistry and furnishing Clothing (*d*) The chemistry of textiles (*e*) Chemistry and dyes (*f*) Skins and leathers

Section VI — *Chemistry, health, hygiene and beauty* (*a*) Biological chemistry (*b*) Pharmaceutical, inorganic and biological chemistry, (*c*) Pharmaceutical technique; (*d*) Pharmaceutical industries, (*e*) Industries of hygiene and beauty preservation (soaps, perfumes, beauty preparations, etc)

Section VII — *Chemistry in documentation, propaganda, art and amusements:* (*a*) The press (paper, inks, etc), (*b*) Photography and photographic chemistry; (*c*) Photomechanical reprinting (*d*) Cinematography, (*e*) Gramophones and records, (*f*) Lenses

Section VIII — *Chemistry and agriculture* (*a*) Agricultural chemistry, (*b*) Fertilizers and the technique of artificial manuring, (*c*) Agricultural industries and chemical-agricultural technology

Section IX. — *Chemistry and industry* (*a*) Chemical apparatus and fittings; (*b*) Chemistry in non-chemical industries.

Section X — *Chemistry and transport:* (*a*) Transport by land, (*b*) Transport by sea, (*c*) Transport by air.

Section XI. — *Chemistry and defence measures:* (*a*) Explosives, (*b*) Chemical methods of attack and protective measures, (*c*) Chemistry and war material; (*d*) Substitutes

BOOK NOTICES *

PROCEEDINGS OF THE IIND INTERNATIONAL FORESTRY CONGRESS. – Budapest, 1936, 3 volumes, 1686 pages numerous illustrations, photographs and tables

[In this work, a complete report is given of the proceedings of the *IInd International Forestry Congress*, held from 10 to 14 September, 1936 at Budapest.

The 1st volume includes the preliminary transactions, the organization of the Congress, the list of participants (over 600 members, representing 36 countries and 5 international institutions), the various activities of the Congress (meetings, receptions, etc.) The text of the resolutions is given in a special chapter and in another, the tours made by the members of the Congress in the different forest lands of Hungary are described.

The IInd and IIIrd volumes consist of the proceedings of 9 sections of the Congress and include the reports of the meetings and also the complete text of the reports which number 154. The reports are published in the original language used by the authors. German, English, Spanish, French, Hungarian, Italian A summary in French is given of each report

Among the resolutions taken by the Congress, the most important is undoubtedly that which recommends the establishment of an international forestry organization. At the end of the IIIrd volume, there is an account beginning from p 683, of the steps taken in furtherance of this resolution, under the title Report of the meeting at Budapest for the establishment of an International Forestry Committee This appendix, very important in our opinion, forms a record of the first endeavours made with a view to reaching agreement The date of this meeting (1937) should correspond to that given on the cover of the three volumes (instead of 1936)

As is known, the question of the establishment of an International Forestry Committee has not yet been decided, and is now under consideration by the Permanent Committee of the International Institute of Agriculture

Admirably arranged, the Proceedings, drawn up in a series of general reports are instructive to the reader and at the same time specify the conditions and forestry problems of a very large number of countries]

G I.

NAGY, I E, Die Landwirtschaft in heutigen Aegypten und ihre Entwicklungsmöglichkeiten Wien, 1936, Scholleverlag. 163 pp, profusely illustrated

[This book will be of value to everyone interested in the agriculture of Egypt The A, who is the Director of the Royal Agricultural Museum, has travelled extensively and studied in detail the agricultural practices of the people, practices based on ancient traditions

It is common knowledge that Egypt owes her fertility to the Nile Therefore, the A. naturally begins with all hydro-geographic questions regarding this river: sources, rainfall of the regions of origin, barrage irrigations, drainage, etc The succeeding chapters treat of the population, distribution of landed property, taxes and irrigation rates, agricultural credit and rural cooperation. The A proceeds to discuss soils, chiefly alkaline soils and their improvement, fertilizers, crop rotation.

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* Under this heading are included short synopses of books received for review.

Naturally, a considerable part of this book (37 pages) is devoted to cotton, th principal crop, and valuable information is given on the cultivation of and trade i cotton The other crops, wheat, maize, rice, sugar-cane, forage plants, oil-yielding plant vegetables, fruit trees are treated in some thirty pages, apiculture, silk-worm raisin pisciculture, animal bushandry, poultry husbandry, in 18 pages.

An account is given of the government organizations engaged in agriculture, experiment stations, agricultual instruction, organization of trade, foreign trade.

The A in concluding his work, discusses the future development of agriculture i Egypt].

W. B

Dr. Ernst Heizmann, *Die Untugenden des Pferdes und ihre Behandlung*. Leipzig Molkau, 1937, Verlag Walter Richter, 84 S, 13 Abb.

[In this practical, concise and at the same time very detailed book, the A describes the causes and symptoms of the different defects of the horse, and also th treatment of affected animals. This work is based on a large number of observations made by various experts, and on an accurate knowledge of the bibliograph regarding this question. This book may be considered as a valuable guide for th practical worker and is also of importance to the scientist both with regard to th critical study of the horse and also in respect of the psychology of the animal

Together with the description of the defects, the A discusses the question determining up to what point the defects treated are considered according to the law as redhibitory or otherwise

Special mention should be made of the extensive bibliographical index, whic includes not only new works, but also old now historical studies dealing with thi question]

J M

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography

Willis, L. G. Bibliography of references to the literature on the minor elements and their relation to the science of plant nutrition. 2nd ed [New York, Chilean nitrate educational bureau, 1936] [4], 396 p

General

Agricultural progress. The Journal of the Agricultural Education Association. v. 14. (Part 3). 1937. Cambridge, W. Heffer, 1937. 173-273 p.

Banda C., F. Posibilidades agro-económicas del Ecuador Quito, Impr. nacional, 1937. xiv, 416 p

Fédération nationale des Unions professionnelles agricoles de Belgique, Bruxelles. 18ème [et] 19ème Congrès annual. Bruxelles, 22 et 23 février 1936, 6 et 7 mars 1937. Rapports. Bruxelles, Etablissements gén. d'impr., 1936, 1937. 2 vols.

Italie. Ministero dell'agricoltura e delle foreste. Notes sur l'agriculture italienne et sur l'organisation corporative agricole. Rome [« Arte della stampa »], 1937. 325 p. (« Hommage du Ministère de l'agriculture et des forêts d'Italie au 17e Congrès international d'agriculture, La Haye, 16-24 juin, 1937 »).

NAGY, I. E. Die Landwirtschaft im heutigen Agypten und ihre Entwicklungsmöglichkeiten. Wien, Scholle-Verlag, [1936], 163 p.

SINDACATO NAZIONALE FASCISTA TECNICI AGRICOLI Agricoltura e Impero. Conferenze tenute al corso di organizzazione tecnico-agricolo-coloniale. Roma, Tip. ed. Sallustiana, 1937. 694 p.

SOCIETÀ AGRARIA DELLA PROVINCIA DI BOLOGNA. Annali. v. 64 e 74 delle memorie per l'annata 1936. Bologna, Tip. P. Cuppini, 1937, 230 p.

WIRZ'S SCHREIB-KALENDER FÜR SCHWEIZERISCHE LANDWIRTE AUF DAS JAHR 1938. 44. Jahrgang. Hrsg. von E. Laur. Aarau, Wirz, [1937] 240-180 p.

Agricultural experimentation

TRUE, A. C. A history of agricultural experimentation and research in the United States, 1607-1925, including a history of the United States Department of Agriculture. Washington, Govt. printing office, 1937 321 p. (Etats Unis Department of Agriculture. Miscellaneous publication nº 251).

Agronomy.

NATIONAL FERTILIZER ASSOCIATION. Proceedings of the 13th annual convention of the National Fertilizer Association held at White Sulphur Springs, W. Va. June 7-9. 1937. [Washington], 1937. 114 p.

Plant Protection.

SNELL, W. H. Three thousand mycological terms. [Lancaster, Pa , Science Press Printing cº], 1936. 151 p. (Publication No. 2 of the Rhode Island Botanical Club).

Crops of Temperate Regions.

NOTTIN, P ; A. DARON; M. PIGNARRE. Recherches sur la valeur industrielle des blés durs. [Constantine, Braham, 1936]. 2 v. (Chambre d'agriculture de Constantine).
v. 1: Text. v. 2: Analytical tables.

Tropical and Subtropical Crops

DICKSON, H The story of King Cotton. New York, Funk & Wagnalls, 1937. XII, 309 p.

INDES BRITANNIQUES. CENTRAL COTTON COMMITTEE. Summary proceedings of the 34th meeting of the Indian Central Cotton Committee, Bombay, held on the 2nd & 3rd march 1937. [Bombay], [Govt. central press], [1937]. 94 p.

TANGANYIKA COFFEE GROWERS' ASSOCIATION. 2nd Annual report 1936-37 Nairobi, W. Boyd & Co., [1937]. 15 p.

Viticulture.

DIEMER, E. Deutschlands Weinbauorte und Weinbergslagen. 4. Aufl. Mainz, J. Diemer, 1937. VII, 284 p.

GAROGLIO, P. G. Corso di enologia con particolari nozioni di zimotecnia, chimico-fisica ed enochimica. Firenze, « Il progresso vinicolo », 1938. 373 p.

WANNER, E. Bodenpflege und Düngung im Weinbau. Stuttgart, E. Ulmer, [1937]. (Grundlagen und Fortschritte im Garten- und Weinbau. Hrsg. C. F. Rudloff, Hft. 34).
v. 1. Die Bodenpflege und die Bodenbearbeitungsgeräte. 1937. 61 p.

Forestry.

Barth, A. Norsk skogbruk under utvikling. Oslo, Grøndahl & Søn, 1937, p. 39. [The development of Norwegian forestry].

Deutscher Forstverein. Jahresbericht 1936. Berlin, « Der Deutsche Forstwirt », [1937], 594 p.

Hesmer, H. Die heutige Bewaldung Deutschlands. Berlin, P. Parey, 1937, 52 p.

Social science research council Committee on social and economic research in agriculture. A survey of research in forest economics. A report prepared under the direction of the Committee on social and economic research in agriculture by the Sub-committee on scope and status of research in forest economics New York, 1936 VII, 52 p. (Social science research council. Bulletin n° 24)

Animal Husbandry

Gerspach, K Stallbau und gesunde Tierhaltung. Der Bau des Viehstalles Ein Beitrag und Wegweiser zur Erzeugungsschlacht Karlsruhe, Macklot. 1937. 91 p

Iwersen, E Das Holsteiner Pferd Berlin, Deutsche Gesellschaft fur Zuchtungskunde (in Kommission bei P Parey), 1937. 56 p (Aus deutschen Zuchten. Neue Schriftenreihe, hrsg von der Deutschen Gesellschaft fur Zuchtungskunde, Hft 3)

Jahn, K Karakul fur sheep breeding Chicago, Breeder publications, 1937. 128 p

Nordby, J , H. E Lattig Beef Cattle. [Danville, Interstate Printing], 1936. p 132

Nordby, J E , E H Lattig. Poultry [Danville, Ill , Interstate Printing], 1936, p 67.

Nordby, J E et H E Lattig. Swine [Danville, Ill Interstate Printing , 1936, p 101

Poultry world annual & Diary 1934-1937 London, The Poultry World, 1934-1937. 4 vols

Agricultural Engineering.

Etats Unis National resources committee Drainage basin problems and programs December, 1936 Washington, Govt Printing Office, 1937. 540 p.

Schaenzer, J P. Rural electrification. New York, Bruce publishing c°, [1935-1937] IX, 266 p.

Agricultural Industries.

Besser, A Der Einfluss guten Melkens auf den Milchertrag. Berlin, P. Parey, 1937, 16 p

Cabral, T. Lexico açucareiro inglez-portuguez Rio de Janeiro, « Brasil açucareiro » 1937. 169 p (Instituto do açucar e do alcool).

Central council of milk recording societies of England and Wales. Milk recording and dairying Officially compiled by, and containing the 1935, 1936 report of the Central council of milk recording societies of England and Wales. Hertford, [1936], [1937]. 2 vols.

Comitato nazionale per il latte e suoi derivati, Roma. Italiens Milchwirtschaft Zum 11. Milchwirtschaftlichen Weltkongress, Berlin, 1937, hrsg. vom Italienischen Propagandakomitee für Milch- und Molkereiprodukte. Rom, « Arte della stampa »], 1937, 109 p.

Dalgety's annual wool review for Australia & New Zealand 1936-37. [Sydney], [J. Andrew & co.], [1937]. 139 p.

Egorov, P. P. Кооперативно млѣкопреработване: проучвания въ икономическо и организационно отношение. София, П-ца " Задруженъ трудъ ", 1937. 95 p. [The Milk industry in Co-operative creameries. Economic and administrative studies].

Ferro, E. J. Factores que contribuyen al mayor rendimiento de la lana. Buenos Aires, Impr. F. Gurfinkel, 1937. 79 p.

Godbole, N. N. Milk, the most perfect food. [Allahabad, N. N. Godbole, 1936]. xvii, 143 p.

Miscellaneous.

Canadian fisheries manual 1933-1935. Gardenvale, Que., National business publications, [1933]-[1935]. 3 vols.

Hopkins, G. H. E. Mosquitoes of the Ethiopian region. London, British Museum. (Natural history), 1936.
v. 1. Larval bionomics of mosquitoes and taxonomy of Culicine larvae. 1936. 250 p.

Lozach, J. Le Delta du Nil. Le Caire, Schindler, 1935. xxiv, 303 p. (Publications de la Société royale de géographie d'Egypte).

Newbigin, M. I. Plant and animal geography. London, Methuen, [1936]. xv, 298 p.

Royal zoological society of New South Wales. Proceedings 1936-37. Sydney, 1937. 55 p.

Shaw, F. J. F. A handbook of statistics for use in plant breeding and agricultural problems. Delhi, Manager of publications, 1936. [6], 182 p. (The Imperial Council of agricultural research, India).

Periodicals (1), (2), (3).

Agricultor venezolano. Ministerio de agricultura y cria, Caracas, v. 1 (1936) - mens.

Australie. Forestry bureau. *Bulletin*. Canberra, F. C. T., Commonwealth Government printer, nº 2 - irr.

Australie Forestry bureau. *Leaflet*. Canberra, F. C. T., Commonwealth Government printer, nº 1 (1932) - irr.

Bengale. Department of agriculture. *Bulletin*. Alipore, Superintendent Government printing, Bengal Government press, nº 4 (1925) - irr. (Government of Bengal).

Bengale. Department of agriculture. *Leaflet*. [Alipore, Superintendent Government printing, Bengal Government press], nº 5 (1936) - irr.

Bergame. Stazione sperimentale di maiscoltura. [*Pubblicazioni*]. Bergamo, nº 3 (1923) - irr.

Boletín tabacalero. Dirección de agricultura. División de la producción tabacalera, Buenos Aires, nº 1, (1937) - mens. Nº 1 and 2 under the title « Boletín mensual ». [Mimeographed].

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(1) Previous list September 1937. To be continued March 1938.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); fasc. (copy); hebd (weekly); int. (home price), irr (irregular); mens. (monthly); nº (number); N. S (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review

Bulletin de documentation coloniale. Ministère des Colonies. Service intercolonial d'information et de documentation, Paris, nº 80 (1935) – bimens. [Nº 80-112, (7 nov. 1935-8 avr. 1937) under the title « Bulletin hebdomadaire d'informations coloniales »]. [Nº 113-116, (29 avr.-22 juill. 1937) under the title « Bulletin d'informations coloniales »].

Caballo, boletín informativo de la Dirección general de remonta. Buenos Aires, v. 1 (1934) – trim.

Comisión nacional de granos y elevadores. *Publicación*. Buenos Aires, nº 4 (1937) – irr.

C. I B. Comité international du bois. Commission d'utilisation du bois. *Le bois et ses utilisations, revue internationale*. Vienne, nº 7 (1936) – 6 à 8 fois par an. Sch. 12.

Grande Bretagne Forest products research. *Special report*. Forest products research board Department of scientific and industrial research, London, [H. M. Stationery office], nº 1 (1927) – irr. Prix variable par fasc.

Grande Bretagne Forest products research. *Technical paper*. Forest products research board Department of scientific and industrial research, London, [H. M Stationery office], nº 2 (1926) – irr. Prix variable par fasc.

Holz als Roh- und Werkstoff. Berlin, Julius Springer, v. 1 (1937) – mens. RM. 24.

I. I. D. Communicationes. Institut international de documentation, La Haye, Nederlandsch instituut voor documentatie en registratuur, v. 1 (1934) – trim. [Articles in French, German and English Summaries in three languages.] Membres of adhering associations fl 2.50, non-membres fl. 4

Jamaique Department of science and agriculture *Bulletin* (New Series). Kingston, Jamaica Government printing office, nº 3 (1934) irr

Noticioso Ministerio de agricultura de la nación, Buenos Aires, Dirección de propaganda y publicaciones, v. 2 (1937) – irr

Revista vinicola y de industrias anexas. Lima, v. 8 (1937) - mens. 5S

Rivista di parassitologia Roma, [Stab. Tip. F Armani di M Courrier v 1 (1937) – trim L 60 int, L. 90 étr. « Supplemento monografico » numbered issued irregularly

Union soviétique. Institout rastenievodstva Biblioteka Библиографические материалы. Ленинград. Институт растениеводства, nº 1 (1932) - irr Prix var par fasc. Second title in English Bibliographical contributions.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

PLANT PROTECTION

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

French North Africa: Locust Movements during the Year 1936 †

No swarms of desert locusts (*Schistocerca gregaria*, Forsk.) were reported during the year 1936 throughout the territory of North Africa (Algeria, Tunis, and Morocco), and an invasion during 1937 does not appear probable.

The information regarding Moroccan locusts (*Dociostaurus maroccanus*, Thnb.) obtained in Algeria in 1935 during the survey of the outbreak areas, permitted an advance organization in control operations during the winter of 1935-1936 in the regions particularily isolated and deprived of most means of communication.

In this way it was possible to commence control operations at the hatching period, the following districts being dealt with:—

Oran Department. Titen Yaya and Sefioun douars of the mixed commune of Telagh; the douars Hounet, Aioun el Beranis, and Tircine of the mixed commune of Saida, the Tagremaret district of the mixed commune of Frenda.

Algiers Department. Ouled Mareuf, Boughzoul, Oum el Djellil, and Aziz douars of the mixed commune of Boghari; the commune of Boghari; the Medjedel douar of the mixed commune of Bou-Saâda; the douars Zemzache (Ain Feka and Ain Tarech district) and Guelt es Stel of the mixed commune of Ain Boucif; the Amres douar of the mixed commune of Sidi Aissa.

Constantine Department. Berhoum, Magra, Djezzar, Gosbate, N'Gaous, Sefiane and Seggana douars of the mixed commune of Barika; El Kantara and Djebel Groun douars of the mixed commune of Ain Touta; the douars Mehenna, Markounda, Merouana, Ouled Mohamed ben Faroudj, Cheddi, Ouled Fatma, and Ras el Aioun of the mixed commune of Belezma; the douars Ouled Zaoui, Ouled Sellem, Ouled Achour, and Ouled Belaguel of the mixed commune of Ain M'Lila.

Two new breeding areas were discovered towards the end of April in the southern territories, at Hasbaia and Oued Sfissifa in the 'annexe' of Djelfa. The prospection of these districts was undertaken immediately.

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* Under this and the next heading the countries are arranged in French alphabetical order

† Communication from the Government General of Algeria, 'Direction des Services Economiques', to the International Institute of Agriculture.

Though locust movements were noted in numerous districts, the greater part of these movements were due to phase *solitaria* which become abundant or to phases *congregans* (certain areas of the Constantine Department) or *dissocians* (Oran Department and certain areas of the Algiers Department).

The typical *gregaria* phase was only reported at Ain Feka (mixed commune of Ain Boucif) and at Touifsa (mixed commune of Boghari) in the Algiers Department, and was completely destroyed after a month of control operations consisting solely in the spreading of poisoned bran.

Though this method affords total destruction of *gregaria* phase its efficaciousness in the case of *solitaria* or *transiens* phases is far from complete. A considerable quantity of poisoned bran is necessary to bring about the elimination of the breeding areas, and in spite of this, still leaves some untouched.

At the present moment, however, this means of destruction is the only one that can be applied to irregular locust populations which disperse at the beginning of control operations, and the exclusive use of this method during the last three years on all populations discovered on inspection has arrested the invasion which menaced the Algerian territory.

Argentine Republic: Locust Invasion during the Period 1936-1937 *

Herewith are noted the various aspects of the locust invasion (*Schistocerca paranensis*) which occurred in the Argentine Republic during the period 1936-1937.

This invasion proceeding from the North first took place in the period comprised between May and November, 1936.

Just previous to the invasion, it seemed that the locusts would concentrate in the coastal provinces and the interior, but, however, this invasion rapidly extended throughout the whole territory comprised between Buenos Aires and Jujuy, attaining its greatest intensity in the north of the first-mentioned province and those of Entre Ríos, Santa Fé and Córdoba.

On the whole, the extent of this invasion was somewhat less than during the 1935-1936 period; its occurrence was also premature.

On the other hand, oviposition and the apparition of larvae (' mosquita ', ' saltona ') followed at much wider intervals than was the case with former invasions. It is also known that from 29 August to 15 December, 1936, oviposition occurred in various zones of the country, the ' mosquita ' made its appearance from 12 October, 1936, to 14 January, 1937, the ' saltona ' from 4 November, 1936, to 1 February, 1937; adults from 22 December, 1936, up to the present moment.

This irregularity has rendered control more difficult and costly, although successful results have been obtained and little damage was caused.

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* Communication from Dr. JUAN F TOMASELLO, Director of ' Defensa Agricola ', transmitted by the official correspondent of the Institute, Mr. JUAN B MARCHIONATTO, 'Ingeniero Agrónomo', Director of ' Sanidad Vegetal ', Ministry of Agriculture, Buenos Aires, Argentine Republic.

With regard to control measures, as was customary, a rapid and organized mobilization of material and staff which are at the immediate disposal of the 'Dirección de Defensa Agrícola', was effected, special funds were obtained, amounting to the sum of 10 millions 'pesos', of which sum, approximately 6 millions were reserved for the purchase of metal barriers and flame-throwers.

25,616,940 kgs. of adults were captured and destroyed.

A considerable quantity of eggs were destroyed, by digging up infested ground chiefly by means of ploughs.

The control of the 'mosquita' in the provinces in question took on an especial importance. For the first time, flame-throwers were used as the basic method for the destruction of the 'mosquita', though at the same time continuing to employ saponaceous solutions and the 'D. A larvicida' prepared by the firm dependent on the 'Dirección de Sanidad Vegetal'.

In the infested zones, approximately 70,000 flame-throwers were mobilized, employing gas oil and Diesel oil as combustible.

The 'saltona' was effectively controlled by the use of metal barriers. The State distributed 30,700,016.20 metres and 14,380,514.29 metres were purchased by private individuals.

It is calculated that approximately 200,000,000 kgs. of 'saltona' were destroyed.

Poisoned baits were also utilized, although in limited amounts, as the farmers are not much accustomed to this control process, which, however, has given excellent results in various experiments carried out by the 'Dirección de Sanidad Vegetal'.

In conclusion, it must be declared, that both as regards the principal crops of the country (flax, wheat, maize), as well as horticultural and fruit products little damage of note occurred.

Mozambique: Locust Movements *

Niassa Province. During the month of December, 1936, no locust movements were reported in the north of the Colony In January, 1937, this province was invaded by swarms proceeding from the south reaching the Porto Amelia district. Various circumscriptions of this province were invaded by swarms proceeding from the Zambezia province and which spread rapidly from south to north settling at differents points and causing damage

Zambezia Province. In December, 1930, various movements of *Nomadacris septemfasciata* swarms were reported in different circumscriptions of the Tete district; the locust movement was variable, the entry of a swarm proceeding from North Rhodesia and another from South Rhodesia being reported. In January, 1937, swarms settled in various regions of the circumscription of Barué, hoppers making their appearance in Mandie in the same circumscription

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* Communication from Mr. JÚLIO GARDÉ ALVARO CARDOSO, Chief of the Section of Entomology, Lourenço Marques, trasmitted to the Institute by the 'Repartição Tecnica de Agricultura' of the Colony of Mozambique.

In December, 1936, a swarm passed over the circumscriptions of Massingire and Milange (Quelimane district) and another over Vila Bocage. In January, 1937, no communications were received regarding locust movements.

Sul do Save Province. In December 1936, hopper bands were found in the circumscription of Murrumbene of the Inhambane district.

In December, 1936, in various points of the Lourenço Marques district layings were reported. In January, 1937, oviposition continued in different localities and also hopper bands at Magude, Movene, Catuane, and Umbeluzi.

In summing up, during December of last year, the locust movement did not occur in the North, to a certain extent at Tete, decreasing in Quelimane and becoming more intensive in the South on the borders of Incomati and Umbeluzi The egg-laying commenced much later than in former years, although many hopper bands were reported in December. In January, the North of the Colony was unexpectedly invaded by large swarms proceeding from the Zambezia Province These swarms, the same as those in the South of the Colony had initiated the oviposition phase A delay in the laying period was noted in comparison with preceding years in which this phase was generally attained towards the end of November and December. Hatching was reported towards the end of January thus confirming the delay, in former years, during the month of December many hopper bands were already noted It should be noted that a very high temperature and heavy rainfall were prevalent Owing to the rains it was impossible to continue observations on *Locusta migratoria migratorioides* found in the proximity of Xinavane

Southern Rhodesia: Locust Invasion, 1932-1937 *

Monthly Report No. 52. March, 1937.

There have been no reports of locusts in any stage in the Colony during the month of March, 1937.

Monthly Report No. 53 April, 1937.

During the month flying swarms of the new generation of the Red Locust (*Nomadacris septemfasciata*, Serv.) have appeared in the north eastern districts of the Colony including Lomagundi, Darwin, Mazoe, Mrawa, Mtoko and Inyanga.

These swarms have apparently matured in the low veld of the Zambezi Valley and the Mozambique Co's Territory.

While the swarms appear to be gradually penetrating further into the Colony they do not appear to be making sustained flights in any definite direction.

Considerable damage to native crops is reported in the Mrewa district.

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* Communication from the official correspondent of the Institute, Mr Rupert W Jack, F. E. S., Chief Entomologist ,Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia

LEGISLATIVE AND ADMINISTRATIVE MEASURES

French West Africa (Guinea). — By Decree No. 2801 S. E. of the Governor-General, dated 25 November, 1936, taken during the session of the Permanent Committee of the Government Council, the Decree No. 2158 A. E./G., of 29 September, 1936, of the Lieutenant-Governor of French Guinea, rendering compulsory the declaration of the rosette disease of groundnuts, is approved subject to subsequent introduction in the Council of Administration of the French Guinea Colony. (*Journal officiel de la Guinée française*, Conakry, 1er janvier 1937, 37e année, nº 866, p. 6).

Germany. — A new Law regarding the protection of agricultural plants was promulgated on 5 March, 1937.

The first part of the Law contains general prescriptions. The protection of agricultural plants is to be controlled by the Minister of Agriculture. The said Minister is authorized to take all the necessary dispositions with a view to controlling plant diseases and pests in the interior of the country and also to prevent their introduction from abroad.

The Law does not regard damages caused by inundations, polluted waters, and gaseous emanations. Neither does this Law concern dispositions of a legal or administrative order relative to the control of grape phylloxera.

The second part deals entirely with the organization of plant protection methods.

The ' Biologische Reichsanstalt fur Land- und Forstwirtschaft ' will carry out studies on plant diseases and pests, work out methods of control and test their efficaciousness, determine the best methods of control and advise organizations charged with the practical application of plant protection.

This activity, which is described in greater detail in the succeeding articles of the Law is carried out by the district centres (' Pflanzenschutzdienst ') comprising the Plant Protection Service and dependent on the Corporation of Agriculture (' Reichsnahrstand ').

A Plant Protection Service (' Pflanzenschaudienst ') will be established in due course by the order of the Minister of Agriculture. This Service will control the import, export and transport of plants as well as nurseries, horticultural, wine-growing and plant selection establishments. This Service will also have the authority to grant phytosanitary certificates.

The third part of the Law refers to the rights and duties of those concerned. The proprietors and usufructuaries of lands are obliged to carry out the measures imposed by virtue of this Law and to allow for any disadvantage which might thus derive. If, in spite of a special request on the part of the Plant Protection Service, the said persons do not comply with same, the necessary operations will be executed at their expense by the Plant Protection Service.

The expenses entailed by a public control operation will be distributed among the interested parties who will have benefited by this action.

No indemnity whatsoever is allowed for damages caused to private persons by the application of this Law. However, the Minister of Agriculture may accord a compensation in especially serious cases.

The taxes to be collected by the State in virtue of the present Law will be newly regulated by common agreement between the Ministers of Agriculture and Finance.

Finally the fourth part concerns the penalties to be inflicted on infractors of the Law. Those persons who deliberately infringe the dispositions of the Law will incur fines or a period of imprisonment up to two years, contraventions due to negligence will be punished by a fine up to 150 RM. or a corresponding period of detention.

Those persons who deliberately import from abroad plant pests or disease carriers or those persons who deliberately diffuse them in the interior of the country will be liable to a penalty of imprisonment of not less than three months. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1937, Bd. IX, Nr 3, S. 63-69).

*** By Decree of 16 April, 1937, the importation of seeds, plants, and parts of alders, birches, and beeches is prohibited.

However, the seeds of these trees may be imported if not intended for reproduction, and on the condition that their utilization shall be controlled by the customs' authorities.

The import of the seeds, plants and parts of plants of oaks is also prohibited, exception being made for the acorns pertaining to the indigenous species (*Quercus pedunculata* and *Q sessiliflora*), intended for some use other than that of reproduction and controlled by the customs' authorities

The importation of seeds, plants and parts of plants of oaks pertaining to species other than those already mentioned, is allowed on the condition that the consignments are accompanied by a certificate issued by an official of the Plant Protection Service of the country of origin, testifying that the plants contained in the consignment do not belong to the *Q pedunculata* or *Q sessiliflora* species (*Ibid* , 1 Mai 1937, Nr 4, S 86)

Germany (Saar) — The Police Ordinance, dated 6 April, 1937, relative to the control of noxious plants and weeds stipulates that barberry plants [*Berberis*] must not be allowed within close proximity of the fields Every barberry plant found within at least 500 metres of any cultivated field must be uprooted and destroyed as also the roots

The dodder (*Cuscuta*), broom rapes (*Orobanche minor* and *O lutea*), the 'Fruhlingskreuzkraut' (*Senecio vernalis*) and thistles [*Cirsium*] must be destroyed before attaining the flowering stage (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1 Mai 1937, Bd IX, Nr. 4, S. 86-87)

England. — By the Fruit Tree Pests Lincolnshire (Holland) Order of 1937, dated 25 February, 1937, if it appears to the Local Authority from a complaint made to it by a grower of fruit trees that there is reason to suspect that any fruit trees growing on any premises within the district are so affected with any of the pests specified in the Schedule to this Order that any such pest is likely to spread to fruit trees growing on his premises, it shall thereupon cause the appointed Officer to examine as soon as may be practicable, the fruit trees suspected of being so affected.

The pests specified in the Schedule are:—

American Gooseberry Mildew [*Sphaerotheca mors-uvae*].
Apple and Pear Scab [*Venturia inaequalis* and *V. pirina*]
Brown Rots [*Sclerotinia*]
Fruit Tree Cankers [*Nectria*].
Apple Sawfly [*Hoplocampa testudinea*].
Apple Sucker [*Psylla mali*]
Black Currant Mite, or 'Big Bud' [*Eriophyes ribis*]
Capsid Bugs on tree or bush fruits [*Plesiocoris rugicollis*].
Codling Moth [*Cydia pomonella*]
Fruit Tree Aphides [*Aphididae*].
Fruit Tree Red Spiders [*Trombididae*].
Gooseberry Sawflies [*Nematus*]
Plum Fruit Sawfly [*H. flava*]
Winter Moths [*Cheimatobia brumata*]

After the examination of the fruit trees the appointed Officer shall make a report thereon to the Local Autorithy, and the Local Authority, if satisfied that the fruit trees or any of them are so affected as aforesaid, may serve upon the occupier of the premise a notice requiring him within such time as may be prescribed in the notice, to treat the fruit trees in such manner as may be prescribed in the nocice. Such notice may in addition to any other treatment require the cutting out and burning of any branch that is dead or is affected with any of the pests specified in the Schedule to this Order, and the picking and burning of any fruit so affected. (*Statutory Rules and Orders*, 1937, No. 139, (D. I. P. 596), London, 1937, 4 pp).

Argentine Republic. — Having been definitely incorporated in Appendix *H* of the Law for estimated expenditure the sum of 100,000 'pesos' for the establishment and working of the 'Instituto Acridiológico' which shall in future carry out all operations previously effected by the 'Comisión Central de Investigación sobre la Langosta' [*Schistocerca paranensis*]. Decree No 99 321 of 4 February, 1937 abolishes the functions of the aforesaid Central Commission.

All the fittings, furniture, apparatus, instruments, archives, etc., pertaining to the aforesaid Central Commission will be transferred, on inventory, to the 'Dirección de Sanidad Vegetal' by which the 'Instituto Acridiológico' shall be controlled. (*Boletín Oficial de la República Argentina*, Buenos Aires, 12 de abril de 1937, año XLV, núm. 12 326, págs 4342 y 4343).

Australia (Western Australia). — By Order in Council dated 23 December, 1936, Regulation 25 of the Regulations made under 'The Plant Diseases Act, 1914-1935' by Order in Council dated 7 September, 1921, and published in the *Government Gazette* on 16 September, 1931, and also the First Schedule to such Regulations are repealed, and a new Regulation is inserted in lieu thereof, as follows:—

25. (1) Where by virtue of any Proclamation made under 'The Plant Disease Act, 1914-1935' the bringing or sending of any fruit specified in such Proclamation from one portion of the State to another portion of the State is permitted subject expressly to the condition that such fruit is permitted to be so brought or sent only in accordance with the relative Regulations made under the said Act, any person who desires to bring or send fruit from one portion of the State to another portion of the State in accordance with the permission in that behalf granted by such Proclamation aforesaid, shall make application to an inspector for such fruit to be so brought or sent.

(2) An applicant for permission under this Regulation shall if so required by the inspector, furnish the following particulars: —

(*a*) The place where such fruit has been packed for carriage,

(*b*) The place from which and the place to which the fruit is intended to be carried,

(*c*) The kind and quantity of the fruit proposed to be carried;

(*d*) Whether the cases or coverings in which the fruit is packed for carriage are new or second-hand,

(*e*) The place where such fruit prior to carriage as proposed may be inspected by the inspector,

(*f*) The method of transportation and the proposed route of transportation.

(3) Upon receipt of such application and of such further particulars as the inspector may require, the inspector shall, before granting approval —

(*a*) Examine the said fruit and the cases or coverings in which the fruit is packed for carriage,

(*b*) Satisfy himself that the proposed carriage of the said fruit is not absolutely prohibited by any Proclamation for the time being in force under 'The Plant Diseases Act, 1914-1935',

(*c*) If the cases or coverings in which the fruit is packed for carriage are second-hand cases or coverings, satisfy himself that the use of or carriage in such cases or coverings of such fruit as proposed is not prohibited by any Proclamation made under 'The Plant Diseases Act, 1914-1935' or by any Regulations made under 'The Fruit Cases Act, 1919-1933', for the time being in force,

(*d*) If second-hand fruit cases are being used for the carriage of the fruit as proposed, and the use of such cases is not prohibited by any Proclamation made under 'The Plant Diseases Act, 1914-1935', or by any Regulation made under 'The Fruit Cases Act, 1919-1933', provided they are first treated and marked as required by the last mentioned Regulations, satisfy himself that the cases have been so treated and marked,

(*e*) Where apples are the fruit proposed to be carried, satisfy himself that such apples have been for a period of six weeks placed into a cold store at a temperature of not more than 32 degrees.

(4) If after due inquiry the inspector is satisfied that the fruit proposed to be carried can properly and lawfully be carried from and to the places stat-

ed by the applicant, the inspector shall grant to the applicant approval for the carriage of such fruit as proposed. (*Government Gazette of Western Australia*, Perth, December 31, 1936, No. 67, pp. 2108-2109).

⁂ By Order in Council (Agric. File 2861/ 24) the Regulation made under 'The Plant Diseases Act, 1914-1935' and published in the *Government Gazette* on 22 May, 1936 [see this *Bulletin*, 1936, No. 10, pp. 224-225], and therein appearing as Regulation 48 B is amended by substituting for the said number '48 B' the number '48 C'. (*Ibid.*, March 9, 1937, No. 12, p. 395).

Belgium. — A Ministerial Decree of 14 May, 1937 establishes the charges to be made on behalf of the State in the following cases:— (*a*) inspection of consignments of plants intended for abroad; (*b*) inspection of consignments of plants intended for import and not accompanied by prescribed official certificates; (*c*) inspection of consignments of potatoes and flax seed intended for abroad; (*d*) inspection of consignments of gooseberries, cherries, etc. intended for abroad; (*e*) inspection of consignments of potatoes, aubergines, tomatoes, cherries, peaches, apricots, etc., intended for import and not accompanied by a prescribed official certificate; (*f*) consignments requiring to be accompanied by a certificate of origin and issued by the Phytopathological Service but not necessitating inspection; (*g*) inspection of consignments not coming within any of the categories from (*a*) to (*e*). (*Moniteur Belge*, Bruxelles, 5 juin 1937, 107e année, nº 156, p. 3600-3601).

Colombia. — As the presence of 'gusano rosado del algodonero' (*Sacadodes pyralis*) has been ascertained in many regions of the country, and that in order to control this pest, it is necessary to know the periods during which sowing is forbidden, the Chiefs of the Departments have been charged by Decree No. 24 of 8 January, 1937, to report, by means of Decrees, that period of the year during which the sowing of cotton is absolutely prohibited in the respective Departments. (*Diario Oficial*, Bogotá, 3 de marzo de 1937, año LXXIII, núm. 23423, págs. 462 y 463).

Gold Coast. — The Importation of Plants Regulation Ordinance No 18 of 28 March, 1936, authorizes the Governor to regulate plant imports.

The Governor will have the authority to -

(*a*) Prohibit or limit the importation of plants, parts of plants, earth, manure, containers, packing material, etc.;

(*b*) Commission any authority with the elaboration of the prescription regarding these imports;

(*c*) Nominate places of entry through which imports must be made;

(*d*) Make such provisions as will ensure inspection of all imports,

(*e*) Take the necessary provisions for the destruction or disinfection of consignments recognized as being affected by plant diseases or pests;

(*f*) Determine the taxes to be imposed,

(g) Finally take every possible measure in order to ensure the effective operation of this Ordinance.

These dispositions may be applied to consignments from any source or else to those consignments coming from certain countries only. The names of these countries will be published in the Official Journal. (*Deutsches Handels-Archiv*, Berlin, 1. April 1937, 91. Jahrg., S. 1072).

Egypt * — Under the title ' List of officials authorized to sign the phytopathological certificates ', the Plant Protection Section of the Ministry of Agriculture has published a list of the officials duly authorized to inspect the consignments of plant products intended for export and also to issue the relative health certificates. Besides the name of the official, indication of his official functions and the fac-simile of his signature are given in this list. The list concludes with the fac-simile of the seal of the five Plant Quarantine Offices at present in operation in the Kingdom.

Any eventual change in this list will be communicated in due course.

France. — By Ministerial Decree of 1 March, 1937 relative to the transit of potatoes originating in and proceeding from Belgium, Great Britain and the Netherlands, article 3 of the Ministerial Decree of 5 December, 1936 [see this *Bulletin*, 1937, No. 2, p. 32], is modified as follows:—

. . . .

' (3) Transit without transhipment at the place of entry on the territorial frontier and, in the case of entry on the maritime frontier (only through the authorized custom-houses· Dunkerque, Havre, Bordeaux, Marseille, Strasburg Port-du-Rhin) '.

The rest remaining unchanged. (*Journal officiel de la République française*, Paris, 3 mars 1937, LXIX^e année, n^o 52, p. 2645).

⁂ A Ministerial Decree of 12 April, 1937 establishes the following:—

Art. 1. — The import and transit are authorized of the plant products enumerated below, originating and coming from the United Kingdom.

(1) Throughout the year:—

(*a*) Onions (without the external sheath), cucumbers, asparagus.

(*b*) Flower bulbs, bulb plants, hyacinths, tulips, rhizome plants and plants of a similar type;

(*c*) *Acacia* (except hardy species), *Acalypha*, *Aglaonema*, *Allamanda*, *Alocasia*, *Anthurium*, *Aphelandra*, Araceae (except hardy species), *Aralia* (except hardy species), *Araucaria excelsa*, *Ardisia*, *Aristolochia* (except hardy species), *Asparagus* (except hardy species), *Aspidistra*, laurels in boxes or pots, *Begonia* (except hardy plants), *Beloperone*, *Bertolonia*, *Boronia*, *Bougainvillea*, *Bromelia*, cactus and succulent plants, *Camellia japonica*, *Cissus*, *Citrus*, *Clerodendron*, *Cli-*

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* Communication from the Legation of His Majesty the King of Egypt, Rome, to the International Institute of Agriculture.

via, Coccoloba, Columnea, Croton, Curmeria, Dichorisandra, Dieffenbachia, Dracaena, Erica (except hardy plants), *Eugenia, Euphorbia* (except hardy plants), *Eurya,* ferns (except hardy species), *Ficus* (except *F. carica*), *Fittonia, Fourcroya* (= *Furcraea*), *Franciscea* (= *Brunfelsia*), *Gardenia, Gerbera, Haemanthus, Hedychium, Hibiscus* (except hardy species), *Hoya, Ixora, Jasminum* ((except hardy species) *Kennedya, Leea, Leptospermum, Maranta, Medinilla, Metrosideros, Monstera deliciosa* (= *Philodendron pertusum*), *Musa, Nepenthes, Nephthytis, Nerium, Ophiopogon* (except hardy species), orchids, palms, Pandanaceae, *Pavonia, Peperomia, Phormium* (except hardy species), *Phyllotaenium, Plumbago* (except hardy species), *Pothos, Rhopala* (= *Roupala*), *Sansevieria, Schismatoglottis, Sonerila, Spathiphyllum, Stephanotis, Strelitzia, Syngonium, Thunbergia, Vanilla,* water lilies, *Xanthosoma.*

(2) During the period 1 October – 7 April inclusive:—

Azalea indica, Euonymus japonicus, Genista (*Cytisus canariensis* and *C. fragans*), *Hydrangea hortensis* (= *H. hortensia*), and any living plant besides those mentioned in paragraphs (1) (*b*), (*c*), and (2), provided that they are free from adherent earth.

Art. 2. — The import of the living plants enumerated or viséd in paragraph (2) of Article 1 is authorized within the period 8 April—30 September inclusive, if accompanied by a double copy of a certificate of origin and phytosanitary inspection issued by the Phytopathological Service of the United Kingdom.

Art. 3. — The import of living plants with attached soil other than those enumerated in Article 1, (1) (*b*), (*c*), and (2), is authorized, if accompanied with a certificate as according to Article 2.

Art. 4. — The import of fresh vegetables, other than those listed in Article 1, paragraph (*a*) is authorized --

(*a*) From 15 October to 20 April inclusive,

(*b*) From 21 April to 14 October inclusive, if provided with a certificate as according to Article 2.

Art. 5. — The transit of the products mentioned in Articles 2, 3 and 4, is authorized throughout the whole year. (*Ibid.*, 18 avril 1937, n° 91, p. 4407-4408).

⁂ A Notification of the Ministry of Agriculture informs exporters of peaches, nectarines and apricots in Belgium that consignments of these fruits are exempt from inspection by the Belgian Phytopathological Service (see this *Bulletin*, 1933, No. 9, p. 204, and 1936, No. 12, p. 268), when accopanied by a certificate issued by the French Phytopathological Service testifying that these products are free from ' worm ' [this denomination signifies the larvae of all fruit flies pertaining to the *Trypetidae* family, as well as the larvae of *Anarsia lineatella, Cydia molesta* and *Conotrachelus nenuphar*] (*Ibid.*, 6 juin 1937, n° 130, p 6328).

Italy. — By Law No. 576 of 3 April, 1937, has been transformed into Law the Royal Decree-Law No. 115 of 18 January, 1937 [see this *Bulletin*, 1937, No. 4, pp. 70-71] relative to the subsidies to be accorded to proprietors of citrus orchards as a contribution by the State towards the expenses incurred in carrying out control operations against ' mal secco ' [*Deuterophoma tracheiphila*] in Sicily. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 13 maggio 1937, anno 78°, n. 110, p. 1750).

⁂ The Royal Decree-Law No. 642 of 15 April, 1937 authorizes the Ministry of Agriculture and Forests to contribute to the expenses incurred through the control of scale insects of citrus trees during the 1936-1937 season.

A credit of 2,100,000 lires is entered for this purpose, in the statement of estimated expenditure by the said Ministry for the financial year 1936-1937. (*Ibid.*, 19 maggio 1937, n. 115, p. 1840).

⁂ A Ministerial Decree of 26 April, 1937, authorizes the Game Commission in the province of Rome to kill thirty deer in the Monte Artemisio zone in order to check the considerable damage caused to crops by this game. (*Ibid.*, 1° maggio 1937, n. 101, p. 1619).

⁂ By Ministerial Decree of 21 April, 1937, the control of the cock chafers (*Melolontha melolontha*) in the Bergamo province by collection of beetles to be effected through the operation and expense of the persons interested has been made compulsory. (*Bollettino ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 16 maggio 1937, anno IX, n. 10, p 1015)

Luxemburg (Grand Duchy of). — A Decree of 31 March, 1937, establishes the organization of a service of local observers who are charged to report immediately to the Wine-growing Station the appearance of any disease or pest in the vineyards. (*Mémorial du Grand-Duché de Luxembourg*, Luxembourg, 3 avril 1937, n° 26, p. 212-213).

Mauritius (Colony of). — By Proclamation No. 24 of 5 September, 1936, the Director of Agriculture or other person deputed by him in writing may at any time inspect sugar canes or other crops in the Island and issue, if necessary, an order in writing containing instructions as to the cutting, reaping and disinfection or other treatment of sugar canes or crops and as to the disinfection or treatment of the soil in which they are growing.

The Director of Agriculture may at any time prohibit in any areas the digging of larvae of *Phytalus smithi* from the soil or the collection of adults of this beetle, if he has reasons to believe that by so destroying the larvae or adults their parasites are destroyed.

Provided it shall be lawful for the Director of Agriculture, after having prohibited the collection of adult beetles in the above-mentioned areas, to allow the collection at any time if he finds it desirable.

The Director of Agriculture may at any time order the planting, raising or cultivating of such trees, shrubs or plants as may be deemed expedient for the purpose of attracting or trapping *Phyt. smithi*, or its natural enemies and may order the spraying or other treatment of trees, shrubs or plants for the purpose of destroying the pest.

These trees, plants or shrubs shall be protected by the owner or his representative or by the occupier of the land on which they are planted or cultivated for such time as the Director of Agriculture may consider necessary. (*Legal Supplement to the Official Gazette of the Mauritius Government*, No. 57 of September 5th, 1936, pp. 41-42).

⁂ By Proclamation No. 25 of 5 September, 1936, the following insects are declared to be beneficial insects:—

(*a*) *Tiphia parallela*, a Scoliid wasp introduced from Barbados;

(*b*) *Campsomeris coelebs*, *C. pilosella*, *C. erythrogaster* and other *Campsomeris* species, Scoliid wasps introduced from Madagascar;

(*c*) *C. javana*, *C. annulata*, *C. phalerata* and other *Campsomeris* species introduced from the Far East (Java);

(*d*) *C. rodriguezensis* introduced from Rodriguez;

(*e*) *Prosena siberita*, a Dexiid fly introduced from the Far East (Java);

(*f*) *Pyrophorus luminosus*, an Elaterid predator introduced from Porto Rico;

(*g*) Tachinid flies from Madagascar, Java, etc., for parasitising the larvae of *Phyt. smithi*;

(*h*) Dexiid flies introduced from Madagascar and other countries for parasitising the adults of *Phyt. smithi*;

(*i*) *Scolia oryctophaga*, a Scoliid wasp introduced from Madagascar for parasitising *Oryctes tarandus*;

(*j*) *C. fallax*, an indigenous Scoliid wasp parasitising *Rhizotrogus* species.

The capture and the possession in cages or in any other container of beneficial insects in any place, is prohibited.

Provided that the Director of Agriculture or any person authorized by him may enter upon any land, on notice being given to the owner or occupier thereof, or to his representative, and there capture and remove the above mentioned beneficial insects in such number as shall be required by him either for scientific purposes or for distribution elsewhere. (*Ibid.*, pp. 43-44)

New Zealand. - On 18 March, 1937 the Minister of Agriculture has published a Resolution passed by the Egmont County Council on 9 March, 1937, establishing that in view of the alarming increase in the spread of noxious weeds, the said Council assume responsability on 1st April, 1937 for the administration of the Noxious Weeds Act, 1928, and amendments. (*The New Zealand Gazette*, Wellington, March 24, 1937, Numb. 18, p. 655).

⁂ By Special Order made by the Wairewa County Council on 9 March, 1937, and published by the Minister of Agriculture on 23 March, 1937, hemlock (*Conium maculatum*) has been declared to be a noxious weed within the County of Wairewa. (*Ibid.*, April 1, 1937, Numb. 22, p. 948).

RECENT BIBLIOGRAPHY

ADAMSON, A. M. Preliminary report on termites and termite damage in Trinidad, West Indies. *Tropical Agriculture*, Trinidad, B. W. I., 1937, Vol. XIV, No. 5, pp. 141-149, figs. 1-11. References, p. 149.
[A list of termites known in Trinidad is appended].

AINSWORTH, G. C. The plant diseases of Great Britain. A bibliography. With a foreword, by E. J. Butler. London, Chapman & Hall, Ltd., 1937, XII + 203 pp.
[This bibliography is an attempt to collect together in a convenient form the key references for the principal plant diseases of Great Britain so that descriptions of the symptoms, the causal agents and methods of control may be quickly found and additional information discovered. Each reference has been briefly annotated to indicate the type and scope of the paper
The host plants are arranged alphabetically within the different groups (cereals, fodder crops, root crops, potato, pulse, vegetables, pome fruit, stone fruit, bush fruit and soft fruit, miscellaneous fruit, ornamental plants, trees, miscellaneous plants), according to their generic names
The diseases are arranged under each host plant according to the causal agents
A few non-parasitic diseases have also been included]

ALVARADO, Juan Antonio. Muerte prematura de cafetos. *Revista Agricola*, Guatemala, 1937, vol XIV, núm. 6, págs. 314 a 324, 1 fig.
[The dying-off of a coffee tree may be due to two causes of nonparasitic origin and parasitic or infectious origin]

ANDERSON, H. W., KADOW, K. J, and HOPPERSTEAD, S. L The evaluation of some cuprous oxides recommended as seed-treatment products fo the control of damping off. *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No 4, pp. 575-587, figs. 1-4.
[*Pythium* and *Rhizoctonia* spp]

ANTONGIOVANNI, Enrico. Un nuovo parassita del *Chrysomphalus dictyospermi* Morg. *Bollettino della Società Entomologica Italiana*, Genova, 1937, vol. LXIX, n. 3, pp. 44-46, figg. 1-2.
[*Habrolepis pascuorum* ?].

ARK, P. A. Effect of certain enzymes and amino-acids on crown gall tissues. *Science*, Lancaster, Pa., 1937, New Series, Vol. 85, No. 2206, p. 364.
[*Phytomonas tumefaciens*].

ARNDT, C. H., and CHRISTIE, J. R. The comparative rôle of certain nematodes and fungi in the etiology of damping off, or soreshin, of cotton. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 4, pp. 569-572.
[*Aphelenchoides parietinus*, *Aphelenchus avenae*, *Cephalobus elongatus*, *Acrobeles butschlii*, *Fusarium moniliforme*, *F. vasinfectum*, *Glomerella gossypii*].

AWIBOWO, R. De Randoe-toopboorder (*Alcides leeuweni* Hell.). Voorloopige samenvatting. *De Bergcultures*, Batavia-Stad 1937, 11e jaarg., no. 16, blz. 547-548, 3 fig.

BALACHOWSKY, A. Recherches sur l'utilisation du froid dans la lutte contre le ver des cerises (*Rhagoletis cerasi* L.). *Annales des Epiphyties et de Phytogénétique*, Paris, 1937, nouv. sér., tome III, fasc. 1, p. 137-140.

BARNES, H. F. Methods of investigating the bionomics of the common crane-fly, *Tipula paludosa* Meigen, together with some results. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 2, pp. 356-368, pl. XXVII, References, p. 368.

BARTOLI, O. I danni del Cleonus nelle zone di approvvigionamento dello zuccherificio di Cecina. *Pagine Agricole*, Livorno, 1937, anno XXI, n. 5, pp. 4-5. [*Cleonus mendicus*].

BEAUVERIE, J. Etudes de cytologie expérimentale. Les chromoplastes des renoncules et leurs altérations. (Introduction à l'étude de l'immunité chez les végétaux). Première partie: Etat normal. *Annales des Sciences Naturelles, Botanique*, Paris, 1937, 10ᵉ série, tome XIX, p. 7-24, fig. 1-13.

BENNETT, F. T. Dollarspot disease of turf and its causal organism, *Sclerotinia homoeocarpa* n. sp. *The Annals of Applied Biology*, London, 1937, Vol XXIV, No. 2, pp. 236-257, figs. 1-4, pls. XIII-XV. References, p 256.
[A Latin diagnosis of the new species is given]

BERGER, G. Une grave maladie de la fève au Maroc (*Botrytis fabae* Sard). *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc. 2, p. 101-111, fig. 1-3.

BEVER, Wayne M. Influence of stripe rust on growth, water economy, and yield of wheat and barley. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 5, pp. 375-385, figs. 1-3 Literature cited, pp 384-385
[*Puccinia glumarum*]

BLANCHARD, Everard E. El empleo de los cebos trampas en la lucha contra la oruga de las pomáceas (*Cydia pomonella* L). *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs 225 a 227, 5 figs.

BONNEMAISON, L Un Aphide nuisible aux fougères nouveau pour la France, *Idiopterus nephrolepidis* Davis *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc. 2, p 163-171, fig. 1-8. Bibliographie, p. 171.

BOURGOGNE, J. Description de deux *Psychidae* nouvelles de Cochinchine nuisibles au *Nipa fruticans* [Lép Hétérocères] *Bulletin de la Société entomologique de France*, Paris, 1937, tome XLII, nº 4, p. 55-62, 1 pl
[*Acanthopsyche* (*Cremastopsyche*) *nipae* n sp and *A* (*Metisa*) *griseoalba* n sp].

BRANAS, Jean, et BERNON, Georges. Résumé des recherches entreprises en 1936 sur le traitement de la panachure de la vigne *Annales de l'Ecole nationale d'Agriculture de Montpellier*, Montpellier, 1937, nouv ser., tome XXIV, fasc. III, p. 249-252. Bibliographie, p. 252.
[This disease is characterized by a yellowing of the leaves which is independent of the presence of calcium carbonate in the soil]

BRANAS, Jean, et BERNON, Georges Troisième contribution à l'étude du court-noué de la vigne. *Annales de l'Ecole nationale d'Agriculture de Montpellier*, Montpellier, 1937, nouv. sér., tome XXIV, fasc. III, p. 253-257. Bibliographie, p. 257.

BRANDT, Herbert. Untersuchungen über die Änderung des Geschlechtsverhältnisses bei der Nonne (Lymantria monacha L.) und ihre Ursachen. *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd. XXIV, Heft 1, S. 87-94, Abb. 1-2. Literatur, S. 94.

BREDEMANN, G., und RADELOFF, H. Über Fluor-Rauchschäden. Fluoraufnahme durch die Rinde der Sprosse und ihre Wirkung. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S. 172-181. Schrifttum, S. 181.

BREMER, H. Über die bisher falschlich „ Zwiebelrotz " gennante Gelbstrefigkeit an Zwiebelsamenträgern. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 1, S. 79-105, Abb. 1-5. Schriftenverzeichnis, S. 105.
[It is most probably a virus disease].

BRÉMOND, P. Observations sur *Chortophila brassicae* Bché., et son parasite *Aphaereta minuta* Nees au Maroc. *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc. 2, p. 172-174.

BRUNETEAU, J. Recherches sur les ennemis naturels du doryphore en Amérique. *Annales des Epiphyties et de Phytogénétique*, Paris, 1937, nouv. sér., tome III, fasc. 1, p. 113-135, fig. 1-14.
[*Leptinotarsa decemlineata*].

BUHR, Herbert. Parasitenbefall und Pflanzenverwandtschaft. *Botanische Jahrbücher fur Systematik, Pflanzengeschichte und Pflanzengeographie*, Leipzig 1937, 68. Bd., 2/3 Heft, S 142-198, Taf. XXVI-XXVII. Schriftenverzeichnis, S. 196-198.

BURKHOLDER, Walter H. A bacterial leaf spot of geranium *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No 4, pp. 554-560, fig. 1.
[*Phytomonas geranii* n sp on *Geranium sanguineum*, *G maculatum*, *G pratense* and *G. sylvaticum* A description in English of the new species is given]

BURKHOLDER, Walter H. Serological reactions for the determination of bacterial plant pathogens. *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No. 4, pp 572-574 Literature cited, p 574.

BUSNEL, R G Contribution à l'étude anatomique et physiologique de la chenille d'*Ephestia kuehniella* Z. (teigne de la farine). *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc 2, p. 137-162, fig 1, pl. I-IV. Bibliographie générale sur *Ephestia kuehniella* Zeller, p. 161.

CALINISAN, Melanio R, and HERNANDEZ, Crispiniano C. Studies on the control of abacá bunchy-top with reference to varietal resistance. *The Philippine Journal of Agriculture*, Manila, 1937, Vol 7 (1936), No. 4, pp 393-407, fig. 1, pls 1-3. Literature cited, p 405.
[A virus disease]

CHAMBERLAIN, E E Turnip-mosaic A virus disease of crucifers *The New Zealand Journal of Agriculture*, Wellington, 1936, Vol 53, No. 6, pp 321-330, figs. 1-5. Literature cited, p. 330.

CHESNOKOV, P. G. Resistance of spring wheat to the frit fly (*Oscinella frit* L.). *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No. 11, Genetics, Plant Breeding and Cytology of Plants, pp. 153-178. [Literature cited], pp. 175-178.
[In Russian, with title and summary also in English]

CHIAPPELLI, R. I nemici del riso. *Il Giornale di Risicoltura*, Vercelli, 1937, anno XXVII, n. 4, pp. 50-52, 3 figg.
[*Apus cancriformis*, *Planorbis corneus*, *Gryllotalpa vulgaris*]

COLLINS, J. C. Notes on tobacco root-knot nematode. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 5, pp. 368-374. References, p. 374. [*Heterodera marioni*].

CORTI, Hércules. Inútilidad del cianuro para luchar contra las hormigas. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, pág. 180.
[Potassium cyanide or sodium cyanide, commonly called cyanide].

DALLAS, W. K. Spray schedule for control of principal orchard diseases and pests. *The New Zealand Journal of Agriculture*, Wellington, 1937, Vol. 54, No. 1, pp. 15-24.

DALMASSO, G. In tema di peronospora e Osservatorî antiperonosporici. *Il Gazzettino Agricolo*, Padova, 1937, anno XI, n. 20, p. [1].
[*Plasmopara viticola*].

DARLING, Henry M. A study of scab resistance in the potato. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 4, pp. 305-317, figs. 1-7. Literature cited, pp. 316-317.
[*Actinomyces scabies*].

DAWSEY, Lynn H., **CRESSMAN**, A. W., and **HILEY**, Julian. The relative quantities of oil deposited upon paraffin-coated plates and upon plant foliage by oil sprays. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 5, pp. 387-398, figs. 1-3. Literature cited, p. 398.

DI FONZO, Mario A. Algunas enfermedades del algodonero. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 261 a 266.
[*Bacterium malvacearum*, *Rhizoctonia solani*, *Fusarium* sp., *Glomerella gossypii*, virus physiological diseases, etc.]

DUFRÉNOY, J., et **BOUGET**, J. Études sur des maladies à virus de la pomme de terre. *Annales des Sciences Naturelles, Botanique*, Paris, 1937, 10ᵉ serie, tome XIX, p. 181-202, fig. 1-7. Bibliographie, p. 201-202.

DUNDAS, Bjarne. Inheritance of resistance to powdery mildew in beans. *Hilgardia*, Berkeley, California, 1936, Vol. 10, No. 8, pp. 243-253. Literature cited, p. 253.
[*Erysiphe polygoni*].

ELLER, Karl. Zur Rassen-und Artfrage, untersucht an dem Formenkreis von Papilio machaon L. (Lep. Rhop.). *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd XXIV, Heft 1, S. 145-149, Abb. 1-2. Literatur, S. 149.

FEYTAUD, J[ean]. Recherches sur le doryphore. III. - Causes de réduction naturelles (milieu, maladies, ennemis). *Annales des Épiphyties et de Phytogénétique*, Paris, 1937, nouv. sér., tome III, fasc. 1, p. 35-97, fig. 1-4, pl. I-II.
[*Leptinotarsa decemlineata*].

FEYTAUD, J[ean]. Le doryphore et l'Europe. *Revue de Zoologie agricole et appliquée*, Bordeaux, 1937, 36ᵉ année, nº 1, p. 1-13. Bibliographie, p. 12-13.
[*Leptinotarsa decemlineata*].

FOËX, et **ROSELLA**. Un *Sclerotium* parasite, du blé. *Annales des Sciences Naturelles Botanique*, Paris, 1937, 10ᵉ série, tome XIX, p. 221-231, fig 1-10.
[*Sclerotium costantini* n. sp. The Latin diagnosis of this species is given

FRANCESCONI, Mario. Sul nerume del cavolfiore. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 22, p. 185, 1 fig.
[*Alternaria brassicae*].

Frings, Hubert W., [and] Frings, Mable S. Magnesium sulphate – a new insecticide. *Science*, Lancaster, Pa., 1937, New Series, Vol. 85, No. 2209, p. 428.

Fron, G. La maladie de l'orme. *Revue des Eaux et Forêts*, Paris, 1937, tome LXXV, IX^e sér., 35^e année, n° 3, p. 193-200, fig. 1-4. Bibliographie, p. 200. [*Ceratostomella ulmi*].

Gäumann, Ernst. Zur Kenntnis der Luzula-bewohnenden Puccinien. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S. 290-308, Abb. 1-2. Zitierte Literatur, S. 308.
[*Puccinia* spp. on *Luzula* spp.].

Gäumann, Ernst, und Jaag, Otto. Über eine neue Erkrankung der Tanne (*Abies alba* Mill.) und der Fichte (*Picea excelsa* [Lam.] Link.). *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 1, S. 1-16, Abb. 1, Taf. 1-6. Zitierte Literatur, S. 10.
[*Pleurotus mitis*]

Gerretsen, F. C. Manganese deficiency of oats and its relation to soil bacteria. *Annals of Botany*, London, 1937, N. S., Vol. I, No. 2, pp. 207-230, pls. V-VIII. Literature cited, pp. 228-229.
[Grey speck disease of oats is not caused by manganese deficiency alone; the appearance of the typical symptoms depends, in addition, on the presence of certain bacteria which attack the roots of the plants].

Ghillini, C. A. Infezioni vasali nelle piante coltivate la trombosi da "Verticillium" nella varietà "Prunus Davidiana". *L'Italia Agricola*, Roma, 1937, anno 74, n. 3, pp. 208-210, figg. 1-2, Bibliografia, p. 210.
[*Verticillium* sp.].

Godfrey, G. H., and Hagan, H. R. Some measurements of detrimental effects of the root-knot nematode on the pineapple plants. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 4, pp. 515-530, figs. 1-2. Literature cited, p. 530.
[*Heterodera marioni*]

Goia, G., [e] Gerbaldi, C. Rilievi sulla peronospora della barbabietola. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 20, p. 171.
[*Peronospora schachtii*]

Gomez-Menor O., Juan. Notas fitopatológicas. *Revista de Agricultura*, Ciudad Trujillo, República Dominicana, 1937, vol. XXVIII, núm. 91, págs. 170 a 172, 3 figs.
Uromyces jatrophae on *Manihot*, *Cerataphis lataniae* on coconut in the Dominican Republic.

Gualdi, G. I prodotti insetticidi alla nicotina. *Il Tabacco*, Roma, 1937, anno 41°, n. 483, pp. 24-27.

Hauman, Lucien. Les champignons séminicoles des forêts tropicales. Résultats botaniques de l'Expédition scientifique belge au Ruvenzori, 1932. — VI. *Bulletin de la Société Royale de Botanique de Belgique*, Bruxelles, 1936-1937, tome LXIX, 2ème sér., tome XIX, fasc. 1 (1936), p. 96-129, fig. 1-7. Bibliographie, p. 128-129.

Hayward, Kenneth J. Normas para la preparación de caldo bordelés para usar sobre citrus. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 257 a 259.

Heumann, E., Natriumchlorat als erprobtes Mittel gegen das Landrohr, Calamagrostis epigeios. *Forstarchiv*, Hannover 1937, 13. Jahrg., Heft 6/7, S. 106-110, Abb. 1-6.

HUNDERTMARK, A. Verbreitungsmöglichkeiten der Nonne Lymantria monacha L. duch die Eiraupen. *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd. XXIV, Heft 1, S. 118-128, Abb. 1-5. Literatur, S. 128.

IBARRA, Florinda E. Malezas más comunes del trigo y del lino. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 405 a 410, 3 figs.
[*Cynodon dactylon, Rumex crispus, Polygonum acuminatum, Agrostemma githago, Centaurea, Anthemis Cotula, Lolium multiforum, L. temulentum, Melilotus indicus, P. aviculare, P. convolvulus, Vaccaria segetalis, Raphanus sativus, Ammi viznaga, Datura ferox, Digitaria sanguinalis, Setaria verticillata, Salsola kali, Brassica campestris, Sorghum halepense, Conium maculatum*]

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-37. Monthly Report No. 51, February, 1937. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 4, p. 333.
[The locust species in question is not indicated]

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-37 Monthly Report No. 52. March, 1937. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 5, p. 430.
[No reports of locusts during the month]

JAHNEL, Helmut. Wuchsstoffuntersuchungen an abbaukranken Kartoffeln. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 1, S 113-117, Abb. 1. Literatur, S. 117.

JOHNSON, C. G The biology of *Leptobyrsa rhododendri* Horvath (Hemiptera, Tingitidae), the rhododendron lacebug. II. Feeding habits and the histology at the feeding lesions produced in *Rhododendron* leaves *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No 2, pp 342-355, pls. XXIV-XXVI. References, pp 353-354

JOHNSON, James Factors relating to the control of ordinary tobacco mosaic. *Journal of Agricultural Research*, Washington, D C, 1937, Vol 54, No 4, pp. 239-273, figs. 1-7 Literature cited, pp 272-273

KAMERAZ, A. J, and **ANIKIEV**, A M Investigation of degeneration in the potato according to the method of Bechhold and Erbe. *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No 11, Genetics, Plant Breeding and Cytology of Plants, pp. 201-214
[In Russian, with title and summary also in English]

KARGAPOLOVA, N. N. The chemical peculiarities of wheats in connection with their resistance to rust *Puccinia triticina* Erikss *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No 11, Genetics, Plant Breeding and Cytology of Plants, pp 179-199. [Literature cited], pp 196-197.
[In Russian, with title and summary also in English

KARGAPOLOVA, N. N. Anatomical peculiarities of potato species and varieties differing in their resistance to *Phytophthora infestans* DB. *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No. 11, Genetics, Plant Breeding and Cytology of Plants, pp 215-226, figs 1-12. [Literature cited], p. 225.
[In Russian, with title and summary also in English]

KEITT, G. W., [and] **PALMITER**, D. H. Heterothallism in Venturia inaequalis. *Science*, Lancaster, Pa., 1937, New Series, Vol. 85, No. 2212, p. 498.

Klappenbach, Ramón A., y **Reig**, Alfonso A. Lucha contra el sorgo de Alepo. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 417 a 426, 6 figs.
[*Sorghum halepense*].

Köhler, E. Versuche über Pfropfung und Akronekrose bei Kartoffeln. Vorläufige Mitteilung. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S. 158-160, Abb. 1-2.

Köhler, E. Ueber ein " Veinbanding-Virus " der Kartoffel. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 1, S. 17-29, Abb. 1-7. Schriftenverzeichnis, S. 29.

Köhler, E. Fortgeführte Untersuchungen mit verschiedenen Stämmen des X-Virus der Kartoffel (Ringmosaikvirus). *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 1, S. 31-41, Abb. 1-4. Schriftenverzeichnis, S. 41.

Kolubajiv, S. Poznámky k biologii mnišky a jejích hlavních hmyzích parasitů. *Lesnická Práce*, Písek, 1937, roč. XVI, čís. 4, str. 169-199, obr. 1-2. Literatura, str. 193-195.
[In Czech, with titles and summaries also in German and English: - 'Bemerkungen zur Biologie der Nonne und ihrer Hauptparasiten' - 'Notes on the biology of the nun moth and its main parasite insects' *Porthetria (Lymantria) monacha*].

Komárek, Jul. Kritisches Wort über die Bedeutung den Insektenparasiten der Nonne Mit einer Bestimmungstabelle von Serh. Kolubajiv. *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd XXIV, Heft 1, S 95-117, Taf. 1-2.
[*Lymantria monacha*].

Kotthoff, P, Verticillium coccorum (Petsch) Westerdijk als Parasit auf Puccinia Chrysanthemi Roze. *Angewandte Botanik*, Berlin 1937, Bd XIX, Heft 2, S. 127-130, Abb 1-2.

Kozlovsky, Serge. Sur le décalage des générations du *Leptinotarsa decemlineata* en milieu artificiel *Annales des Épiphyties et de Phytogénétique*, Paris, 1937, nouv. sér., tome III, fasc 1, p. 99-111, fig 1-3.

Kuhnholtz-Lordat, G. Glanes phytopathologiques. *Annales de l'École nationale d'Agriculture de Montpellier*, Montpellier, 1937, nouv sér, tome XXIV, fasc III, p. 215-236.
[Enumeration of parasitic fungi collected from the different departments of France]

Küthe, K Zur Biologie und Bekämpfung des Apfelwicklers (Carpocapsa pomonella L.). *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd XXIV, Heft 1, S. 129-144, Abb. 1-6. Literatur, S. 144.

Lemesle, Robert Mycocécidie florale produite par le *Fusarium moniliforme* Sh var. *anthophilum* (A Br) Wr, sur le *Scabiosa Succisa* L. *Annales des Sciences Naturelles, Botanique*, Paris, 1937, 10ᵉ série, tome XIX, p. 341 350, fig. 1-5, 1 pl.

Lesne, P Sur la présence d'une cécidomyie du blé, *Clinodiplosis equestris* Wagner, aux environs de Soissons *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc. 2, p. 98-100, fig. A-B.

[**Ligue Nationale de Lutte contre les Ennemis des Cultures**]. Guide pratique pour la défense sanitaire des végétaux. Maladies principales des plantes cultivées, leur description, leurs causes, leurs traitements. 1937. Préface, par Georges Chappaz. Paris, 1937, XII, 294 p., 1 portr. (Publications de la Ligue Nationale de Lutte contre les Ennemis des Cultures. Maison de l'Agriculture, 129, boulevard Saint-Germain, Paris [VIᵉ]). Prix franco 10 fr.

Lux, Rita. Sur le parasitisme du *Bibio hortulanus* L. par un Nématode du genre *Rhabditis*. (Note préliminaire). *Bulletin du Muséum National d'Histoire Naturelle*, Paris, 1936, 2e sér., tome VIII, nº 6, p. 512-513.

Macdonald, J. A. A study of *Polyporus betulinus* (Bull.) Fries. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 2, pp. 289-310, figs. 1-22, pls. XVIII-XIX. References, pp. 308-310.

Maercks, Hans. Ueber die Sicherheit der Voraussage von Schlüpfterminen bei Schadinsekten. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1937, Bd. 4, Nr. 1, S. 17-30, Fig. 1-3. Schriftenverzeichnis, S. 29-30.

Marchionatto, Juan B. Enfermedades comunes de los rosales y medios para combatirlas. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 127 a 129, 2 láms.
[*Sphaceloma rosarum, Sphaerotheca pannosa, Actinonema rosae, Phragmidium subcorticium, Botrytis cinerea, Coniothyrium fuckelii*].

Marcus, B. Adolf. "Detal"-Bestäubung gegen den Kiefernspanner (Bupalus piniarius L.). *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd. XXIV, Heft 1, S. 71-86. Literatur, S. 85-86.

Maresquelle, H.-J. Les processus fondamentaux de la cécidogenèse. *Annales des Sciences Naturelles, Botanique*, Paris, 1937, 10e série, tome XIX, p. 379-392.

Mariani, Mario. Nuove osservazioni su *Eustaintonia phragmitidella* Mar. (Lepid. Momphidae). *Bollettino della Società Entomologica Italiana*, Genova, 1937, vol. LXIX, n. 3, pp. 46-48.
The caterpillar of this moth feeds exclusively on the waxen secretions of *Aclerda berlesei*, a scale insect which infests the common reed (*Phragmites communis*) and bamboo reed (*Arundo donax*)[1].

Martelli, Giuseppe M. Contributo alla conoscenza biologica del *Dacus oleae* Rossi e dei suoi parassiti in Tripolitania (Nota preliminare). *L'Agricoltura Coloniale*, Firenze, 1937, anno XXXI, n. 4, pp. 140-155, 2 figg.
[*Opius concolor, Eulophus longulus, Eurytoma* sp., *Eupelmus* sp.].

Maublanc, A. Contribution à la connaissance de la flore mycologique du littoral atlantique. *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc. 2, p. 121-132, fig. 1-2
[*Peronosporales, Ustilaginales* and *Uredinales*].

McKinney, H. H. Virus mutation and the gene concept. *The Journal of Heredity*, Washington, D. C., 1937, Vol. XXVIII, No. 2, pp. 51-57, 7 figs. Literature cited, pp. 56-57.

Mendes, Luiz O. T. A "lagarta das maçãs do algodoeiro" Chloridea virescens (Fab.). *Revista de Agricultura*, Piracicaba, E. de S. Paulo, Brasil, 1937, vol. 12, n. 3-4, pags. 110-118, est. I-II. Literatura citada, pag. 117.

Menozzi, Carlo. Curculionidi della sottofamiglia Cleoninae (Coleoptera-Curculionidae) che si notano nelle colture della bietola da zucchero in Italia e loro rapporti con questa pianta. *L'Industria Saccarifera Italiana*, Genova, 1937, anno XXX, n. 5, pp. 207-216, 7 figg. Bibliografia, p. 216
[*Leucosomus pedestris, Conorhynchus mendicus, Cor. luigionii, Mecaspis alternans, Chromoderus fasciatus, Cyphocleonus tigrinus, C. morbillosus, Cleonus piger*].

Monchot, E. Sur un nouvel *Uromyces* de l'oeillet cultivé, *Uromyces Dianthi-Caryophylli* n. sp. *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV; fasc. 2, p. 133-136, 1 fig.

Mozgowoy, Iu. G. The immunity of apple trees to the woolly aphis (*Eriosoma lanigerum* Hausm.). *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No. 11, Genetics, Plant Breeding and Cytology of Plants, pp. 107-151, figs 1-3. [Literature cited], pp. 149-151. [In Russian, with title and summary also in English].

Müller, Karl. Ein Vierteljahrhundert Bekämpfung der Reben-Peronospora (Plasmopara viticola). *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S. 110-118. Literatur, S. 118.

Müller, K. O. Zur Kenntnis der Orobanche crenata Forsk (= O. speciosa DC). *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S. 181-194, Abb. 1-2. Zitierte Literatur, S 194.

Newman, L. J. Grasshopper plague (*Austroicetes jungi*). *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol 14 (Second Series), No. 1, pp. 24-28, 5 figs

Newman, L J, and Morgan, E. T. Preventive and combative measures against potato moth (Phthorimaea operculella) *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol 14 (Second Series), No. 1, pp 82-86 Reference, p 86

Newton, William, Bosher, J. E., and Hastings, R. J. The treatment of glasshouse soils with chloropicrin for the control of *Heterodera marioni* (Cornu) Goodey, and other soil pathogens. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No. 5, pp 182-186 References, p 186.

Newton, William, Hastings, R J, and Bosher, J E The nematode disease of bulbous iris caused by *Ditylenchus dipsaci* (Kuhn 1858) Filipjev 1936, and experiments on its control by bulb treatment. *Canadian Journal of Research*, Ottawa, 1937, Vol 15, Sec C, No. 5, pp. 175-181, fig 1 References, p 181.

Nicolas, G Observations sur les rouilles d'*Euphorbia verrucosa* Jacq *Annales des Sciences Naturelles, Botanique*, Paris, 1937, 10ᵉ série, tome XIX, p. 413-419. [*Uromyces excavatus* and *Melampsora* (?) near Toulouse, France].

Ogloblin, Alejandro A. La protección de los enemigos naturales de la mosca de la fruta (*Anastrepha fraterculus* Wied). *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 177 a 179, figs. 1-3.

Otanes, F Q. Notes on a cacao pod borer moth, *Acrocercops cramerella* Snell. *The Philippine Journal of Agriculture*, Manila, 1937, Vol. 7 (1936), No 4, pp 419-423, pls 1-2. Literature cited, p 422

Oviedo, Sánchez C Antigüedad de gusano del maíz en el noroeste argentino. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 381 a 387, 1 fig., 1 lám. [*Chloridea obsoleta*, *Rachiplusia nu*, *Lycophotia margaritosa*, *Cirphis unipuncta*, *Porosagrotis gypaetina*, *Agrotis ypsilon*, etc].

Petit, A. Observations sur le traitement des graines de blé contre le charbon interne (*Ustilago Tritici*). *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc 2, p. 175-185.

PIERI, A[lfredo]. Lotta contro la Cydia molesta. *Note di Frutticoltura*, Pistoia, 1937, anno XV, n. 5, pp. 69-75.

PITTMAN, H. A. J. Disinfection of tobacco seed. *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol. 14 (Second Series), No. 1, pp. 93-95.

PLAKIDAS, A. G. The rosette disease of blackberries and dewberries. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 4, pp. 275-303, figs. 1-9. Literature cited, pp. 302-303.
[*Cercosporella rubi* (Wint.) comb. n. on *Rubus* spp. A revised technical description in English is appended].

POLITIS, Jean. Immunité et hérédité chez les végétaux. *Revue de Microbiologie appliquée à l'Agriculture, à l'Hygiène, à l'Industrie*, Paris, 1937, 3ème année, nº 3, p. 73-82.

POLLACCI, Gino. Su una grave malattia delle patate manifestatasi nelle provincie di Pavia, Parma e Ferrara. *Atti dell'Istituto Botanico dell'Università di Pavia*, Pavia, 1937, ser. IV, vol. IX, 15 pp., 5 figg.
[The causes, as yet unknown, of the decreased vitality of potato tubers, should be sought, according to the A., in the country which produces these tubers].

POTTER, C. A biological study of the fumigation of empty warehouses with hydrogen cyanide and ethylene oxide. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 2, pp. 415-441, figs. 1-3. References, pp. 440-441.
[Experiments were carried out on *Ephestia elutella* and *Plodia interpunctella*].

PRAVIEL, G. Notes sur la morphologie externe du carpocapse du pommier (*Laspeyresia pomonella* L.). *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, fasc. 2, p. 112-120, pl. I-III.

PRESLEY, John T., and **THOM**, Charles "Spore mats" of Phymatotrichum omnivorum. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No 4, p. 588

PRICE, W. C. Classification of lily-mosaic virus. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 4, pp 561-569, figs. 1-5. Literature cited, pp. 568-569.

RAABE, Achilles. *Helminthosporium tritici vulgaris* Nisikado. Erreger einer Blattkrankheit des Weizens *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 1, S. 111-112, Abb. 1-2.

RENNERFELT, Erik. Undersokningar över svampinfektionen i slipmassa och dess utveckling därl. *Svenska Skogsvårdsforeningens Tidskrift*, Stockholm 1937, årg 35, häfte I, sid. 47-159, fig 1-12. Literaturförteckning, sid 150-152
[In Swedish, with title and summary also in English 'Researches into fungal infection of ground wood-pulp and its development in the same' *Cadophora fastigiata*, *Pullularia pullulans*, *Phoma lignicola* n sp, *Rhodotorula gracilis* n. sp., *Penicillium*, *Aspergillus*, *Trichoderma* spp, etc.]

REYES, Gaudencio M. Rice hybrids *versus* stem rot disease. *The Philippine Journal of Agriculture*, Manila, 1937, Vol. 7 (1936), No. 4, pp 413-417, pls 1-3
[*Sclerotium oryzae*].

RÖDER, K. Perithecien von Erysiphe cichoracearum DC. em. Salm an Freilandgurken (Cucumis sativus L.). *Angewandte Botanik*, Berlin 1937, Bd XIX, Heft 2, S. 161-163, Abb. 1. Literaturnachweis, S. 163.

ROST, Hans. Die Pasmo-Krankheit des Leins in Europa [Erreger Septoria linicola (Speg.) Garassini]. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S 163-171 Abb. 1-3. Literatur, S. 171.

Rothe, Gerhard. Mineralöle im Pflanzenschutz II. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17. Jahrg., Nr. 6, S. 46-48.

Růžička, Jaroslav. O. korovnicích, žijících střídavě na smrku a modřínu v lesích král. kanonie Strahovské na Milevsku. *Lesnická Práce*, Písek, 1937, roč. XVI, čís. 4, str. 199-212. Literatura, str. 208-209.

[In Czech, with titles and summaries also in German, French and English:— 'Über die in den Waldern der königl Kanonie Strahov bei Milevsko auf der Lärche und Fichte lebenden Chermesiden' — 'Chermesinae vivant alternativement dans la Bohême méridionale, et sur le pin et sur le mélèze'. — 'Chermesinae living in South Bohemia alternately on pines and larch trees']

Ryzhkov, V L. Immunity of plants to diseases caused by filtrable viruses. *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No. 11, Genetics, Plant Breeding and Cytology of Plants, pp. 81-105. [Literature cited], pp. 102-104.

[In Russian, with title and summary also in English].

Salgues, René. Les modifications biochimiques en Phytopathologie. *Revue générale des Sciences pures et appliquées*, Paris, 1937, t. XLVIII, n° 9, p. 237-244.

Scarone, Francis. Les plantes à roténone. *L'Agronomie Coloniale*, Paris, 1937, 26ᵉ année, n° 231, p. 79-86; n° 232, p. 107-118, 1 fig Bibliographie, p. 118.

Scharrer, K., und **Schropp**, W Weiten Gefäss- und Wasserkulturversuche über die Wirkung des Bors allein und in Kombination mit Jod in Dungemitteln. *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 1, S. 57-78, Abb. 1-4

Scheibe, Arnold. Das Fritfliegenproblem beim Hafer auf wachstumsphysiologischer Grundlage. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S 260-290, Abb. 1-3 Literatur, S. 289-290

[*Oscinis frit*].

Schlumberger, Otto Über Fritfliegen- und Drahtwurmschäden beim Mais *Angewandte Botanik* Berlin 1937, Bd. XIX, Heft 2, S 153-157, Abb 1-4.

[*Oscinis frit* and *Elateridae*].

Schwerdtfeger, F. Die wichtigeren forstpathologischen Arbeiten des Jahres 1936 *Forstarchiv*, Hannover 1937, 13 Jahrg., Heft 8, S 133-142 Literatur, S. 140-142.

Schwerdtfeger, F., und **Stahl**, G. Untersuchungen über die Bekämpfung des Kiefernspanners mit Kontaktgiften. *Forstarchiv*, Hannover 1937, 13. Jahrg., Heft 5, S. 73-78

[*Bupalus piniarius*]

Servazzi, Ottone. Osservazioni preliminari su *Pestalotia macrotricha* Kleb in coltura. *Nuovo Giornale Botanico Italiano* (n ser), Firenze, 1937, vol. XLIII (1936), n. 4, pp. 887-889.

Sidorov, F F. Breeding of potatoes for immunity to *Phytophthora infestans* DB. *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No. 11, Genetics, Plant Breeding and Cytology of Plants, pp. 5-79, figs 1-12, 1 map. [Literature cited], pp. 75-76

[In Russian, with title and summary also in English].

Smith, Leslie M Biology of the mealy plum aphid, Hyalopterus pruni (Geoffroy). *Hilgardia*, Berkeley, California, 1936, Vol. 10, No. 7, pp. 167-211, figs. 1-12, pl. 1. Literature cited, pp. 206-209.

Smith, Leslie M. Growth, reproduction, feeding, and wing development of the mealy plum aphid in relation to climatic factors. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 5, pp 345-364, figs. 1-9. Literature cited, pp. 363-364.

Smith, Leslie M., and **Goldsmith**, Earl V. The cyclamen mite, Tarsonemus pallidus, and its control on field strawberries. *Hilgardia*, Berkeley, California, 1936, Vol. 10, No. 3, pp. 53-94, figs. 1-8. Literature cited, pp 93-94.

Snyder, W. C, and **Thomas**, H. Rex. Spotted wilt of the sweet pea *Hilgardia*, Berkeley, California, 1936, Vol. 10, No 8, pp. 257-262, fig 1. Literature cited, p. 263.

[A virus disease of *Lathyrus odoratus*]

Sobrero, L. R Máquinas pulverizadoras *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs 239 a 244

Speroni, Horacio A. Informe sobre la naranja negra, sus causas y medio de control. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs 449 y 450, 1 fig.

[This disorder would be caused by the action of a mite belonging to the *Tenuipalpus* genus]

Spoon, W., **van der Laan**, P A, **Smulders**, Clemence M. L., en **Diakonoff**, A. Het verschil in werkzaamheid van Derris- en Lonchocarpuswortel en de onderscheiding van hun wortelpoeders *De Indische Mercuur*, Amsterdam 1937, 60ᵉ jaarg, nº 18, blz. 259-261, 1 fig, blokdiagr I-V, nº 19, blz. 275-276, fig 1-2

Stapp, C. Weitere Beiträge zur Frage der Widerstandsfähigkeit verschiedener Kartoffelsorten gegen Schwarzbeinigkeit und Knollennassfäule, verursacht durch Bacterium phytophthorum Appel *Angewandte Botanik*, Berlin 1937, Bd XIX, Heft 2, S 141-152. Schrifttum, S 152

Steiner, Paul. Beiträge zur Kenntnis der Schadlingsfauna Kleinasiens V Uber einige wenig bekannte Kleinschadlinge der Zuckerrube in der Turkei *Zeitschrift fur angewandte Entomologie*, Berlin 1937, Bd XXIV, Heft 1, S 1-24, Abb 1-19. Literatur, S 24

See also this *Bulletin*, 1936, Nos 10, p 237 and 12, p 285 — *Chromoderus fasciatus*, *Temnorhinus kirghisicus*, *Tanymecus palliatus*, *T dilaticollis*, *Psalidium maxillosum*, *Pedinus strobanis*, *Gonocephalus pusillum*, *Subcoccinella 24-punctata*, *Cassida seraphina*, *C vittata*, *Phthorimaea ocellatella*, *Coccus disciger*, *Pseudococcus* sp., *Spalax monticola anatolicus* in Asia Minor].

Strair, W Die Untersuchungsergebnisse zur Frage der biologischen Spezialisierung des Gelbrostes (*Puccinia glumarum*) und ihre Bedeutung fur die Pflanzenzuchtung *Der Zuchter*, Berlin 1937, 9. Jahrg, Heft 5, S 118-120 Literatur, S 120.

Strickland, E H. The northern limits for potato beetle infestation *Scientific Agriculture*, Ottawa, Canada, 1937, Vol. XVII, No 7, pp 447 450. References p. 450

[With title and summary also in French 'Les limites septentrionales de l'invasion du doryphore (bête à patates)'. — *Leptinotarsa decemlineata*]

SWEETMAN, Harvey L. The biological control of insects. With a chapter on weed control. With a foreword, by L. O. Howard. Ithaca, New York, Comstock Publishing Company, Inc., 1936, XII + 461 pp., 6 portr., 142 figs References, pp. [390]-420.

[A text that might serve the needs of students and research workers in the field of biological control has not been available heretofore.

This book follows a definite plan of presentation, treating first of the lower forms of life and ending with the higher forms of life that are or show promise of being useful in the biological control of pests. Since the Hexapoda is the major group of organisms being utilized in controlling pests by the biological method, the greater portion of the work deals with insects as the controlling agents

The intention of the A. is to acquaint the reader with the life history, habits, methods of handling, and methods of utilization of the organisms that might be, or are being, used in controlling insect pests For this purpose choice has been made of species that are useful, or well-known, or that show common variations in the biology of the various groups.

A chapter is devoted to summarizing the results or attempts to control insect pests by the biological method in continental and insular regions, thus demonstrating the possibilities of utilizing the material that has been presented previously.

A final chapter discusses the biological control of pest plants by the use of phytophagous insects and other biological agents]

TERVET, Ian W. An experimental study of some fungi injurious to seedling flax. *Phytopathology*, Lancaster, Pa., 1937, Vol 27, No. 4, pp 531-546, figs 1-3 Literature cited, pp. 545-546.

[*Helminthosporium* spp., *Rhizoctonia* spp, *Thielavia basicola*, *Ophiobolus cariceti*, *Alternaria* sp., *Pythium* spp, *Phytophthora* spp].

THALENHORST, W. Über die Brauchbarkeit von Paradichlorbenzol zur Engerlingsbekämpfung *Zeitschrift fur Forst- und Jagdwesen*, Berlin 1937, LXIX. Jahrg., 3 Heft, S 168-171 Literatur, S 170-171.

[*Melolontha*, *Polyphylla*, *Amphimallus*]

THIEM, H Vom Blattrippenstecher (*Rhynchites pauxillus* Germ) als Obstbaumschadling *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1937, Bd. 4, Nr 1, S. 1-17, Fig 1-3 Literatur-Verzeichnis, S 12, 15-17.

THIEM, H. Auftreten der Mittelmeerfruchtfliege (*Ceratitis capitata* Wied.) in Deutschland *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17 Jarhg., Nr 6, S. 45

URIEN, José Domingo. La lucha contra la vizcacha. Algunos conocimientos que deben saberse, para combatirla con eficacia. *Almanaque del Ministerio de Agricultura de la Nación*, Buenos Aires, 1937, año XII, págs. 495 y 496.

[*Lagostomus trichodactylus*].

UVAROV, B. P, and MILNTHORPE, W. The locust outbreak in Africa and western Asia in 1935. Preface by Sir Henry Miers. (Economic Advisory Council. Committee on Locust Control. H. M. Stationery Office Publication, No. 63-80-5). London, 1937, 63 pp., 9 maps. Bibliography of the literature on locusts and grasshoppers and on their control for 1935, pp. 50-62.

[*Schistocerca gregaria*, *Locusta migratoria migratorioides*, *Nomadacris septemfasciata*, *L. migratoria* sbsp.].

Vanderwalle, R., et **Larose**, E. La désinfection à l'eau chaude des semences contre le charbon, *Ustilago Tritici* Schaf. *Bulletin de la Société Royale de Botanique de Belgique*, Bruxelles, 1936-1937, tome LXIX, 2ème sér., tome XIX, fasc. 1 (1936), p. 39-40.

Vayssière, Paul. Aperçu sur l'importance économique des punaises du blé. *Bulletin de la Société d'Encouragement pour l'Industrie nationale*, Paris, 1937, 136e année, nos 3-4, p. 191-194. Bibliographie, p. 193-194.
[*Eurygaster* and *Aelia* spp.].

Verplancke, G., et **Vandenbroecke**, R. Contribution à la flore mycologique belge. *Bulletin de la Société Royale de Botanique de Belgique*, Bruxelles, 1936-1937, tome LXIX, 2ème sér., tome XIX, fasc. 1 (1936), p 69-[95], fig. 1-20. [Enumeration of 191 parasitic and saprophytic fungi new to Belgian mycological flora, 20 of these species are new to science The corresponding Latin diagnoses were given]

Wartenberg, Hans. Ueber die Pufferung der Presssafte abbaukranker und gesunder Knollen der Kartoffel. *Phytopathologische Zeitschrift*; Berlin 1937, Bd X, Heft 1, S. 43-56, Abb. 1-4. Schriftenverzeichnis, S. 56.

Wartenberg, Hans, und **Klinkowski**, Max Eine „ Jodprobe " zur Pflanzgutwertbestimmung der Kartoffel. Vorläufige Mitteilung aus Untersuchungen. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. X, Heft 1, S 107-109

Weidemann, M. G. Moderne Fragen in der Phytoimmunologie und der Immunitätszüchtung gegen Pilzkrankheiten *Bulletin of Applied Botany, Genetics and Plant Breeding*, Leningrad, 1937, Series II, No. 11, Genetics, Plant Breeding and Cytology of Plants, pp. 227-258. [Literatur], pp 252-257.
[In Russian, with title and summary also in German]

Welsch, Ilse. Die Massenverbreitung der Pflaumenschildlaus (*Eulecanium corni* [Bouché] March) und ihre Ursachen Beitrag zum parasitologischen Befallswechsel der Pflanzen in Abhängigkeit vom Boden *Landwirtschaftliche Jahrbucher*, Berlin 1937, 84 Bd , Heft 3, S 431-492, 14 Abb Schrifttum, S 491-492.

Westerdijk, Joha. Die Notwendigkeit der Anfälligkeitsprufungen unserer Laub- und Nadelhölzer. *Angewandte Botanik*, Berlin 1937, Bd XIX, Heft 2, S 119-126

Western, J. M Sexual fusion in Ustilago avenae under natural conditions *Phytopathology*, Lancaster, Pa., 1937, Vol 27, No. 4, pp 517-553 figs A-F Literature cited, p. 553

Whitehead, T. Virus diseases of the tomato The " carrier " problem Its relation to symptomatology and commercial potato growing *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No 2, pp 323-341, pl XXIII References, pp. 339-340

Wichens, G. M. Smut diseases of wheat in Southern Rhodesia *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No 4, pp 271-276
[*Ustilago tritici*, *Tilletia caries*].

Williams, C B. The use of logarithms in the interpretation of certain entomological problems. *The Annals of Applied Biology*, London, 1937, Vol XXIV, No 2, pp. 404-414, figs. 1-4. References, p. 414.

WILSON, A. R., The chocolate spot disease of beans (*Vicia Faba* L.) caused by *Botrytis cinerea* Pers. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 2, pp. 258-288, figs. 1-3, pls. XIV-XVII. References, pp. 287-288.

WILSON, Edward E. Symptomatic and etiologic relations of the canker and the blossom blast of Pyrus and the bacterial canker of Prunus. *Hilgardia*, Berkeley, California, 1936, Vol. 10, No. 8, pp. 213-240, figs. 1-6. Literature cited, pp. 239-240.
[*Phytomonas syringae*].

WOLLENWEBER, H. W. Der schwarze Rindenbrand der Quitte. [Erreger: Phacidiella discolor (Mout. et Sacc.) Potebnia]. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 2, S. 131-140, Abb. 1-2. Schriftenverzeichnis, S. 139-140.

WORSLEY, R R. Le G., [and] NUTMAN, F. J. Histology of *Derris* roots. *Nature*, London, 1937, Vol. 139, No. 3525, p. 883.

YARWOOD, C. E. The relation of light to the diurnal cycle of sporulation of certain downy mildews. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 5, pp. 365-373. Literature cited, p. 373.
[*Pseudoperonospora humuli, Peronospora destructor, Plasmopara viticola, Bremia lactucae*]

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: The Effects of Rust on the Poplar Groves of the Delta †

The Special Commission of the Delta presided over by Dr. Andrés Máspero Castro has just accomplished an extensive tour of inspection of the Delta poplar groves which comprised the following sections: Rio Luján, Canal Arias, Canal de la Serna, Paraná Miní, Paraná Guazú, Rio Bravo, Canal Leandro N. Alem and Paraná de las Palmas.

The purpose of this tour was to verify in the said area, if the suspicion held by the islanders that the plants dried up owing to the harmful action of rust, were justifiable, and if it was necessary to accelerate cutting of the poplars.

The Comission took the opportunity of observing the general condition of the poplars attacked by rust, having examined a sufficient number of diseased plants in various stages of cultivation and development. As a first result of this investigation, it was found that rust was extensively established and the damage caused very serious, although the intensity of the attack was not uniform. There are plantations heavily defoliated where scarcely the tops of the trees bear leaves, other with the leaves badly attacked which from a distance appear as if scorched with fire, and finally those only lightly attacked, the trees still having a luxuriant foliage. Only a few dried up trees were observed.

The rust which attackes poplars is *Melampsora larici-populina*, Kleb., a species new to the country, whose appearance was first reported by the Phytopathological Division of the Ministry of Agriculture last summer, when it was verified for the first time as a disease of poplars in the islands of the Delta (see this *Bulletin*, 1936, No. 7, pp. 145-146) The identification of the fungus was confirmed by the P. Luis Unamuno of Madrid and Ernst Gaumann of Zurich to whom specimens were sent for examination.

It is of interest to note that in Europe this rust attacks nearly all species of European poplars (*Populus nigra*, *P. nigra* var *italica*, *P augustifolia*, *P balsamifera*, *P. berolinensis*, *P. canadensis*, *P. cordata*, *P fremonti*, *P salicifolia*, *P. serotina*, etc.), but not *P. monilifera*, which fact is also noted in the plantations of the Delta, however — as is known — this poplar is attacked by another rust, *M. allii-populina*, Kleb.

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* Under this and the next heading the countries are arranged in French alphabetical order

† Communication from the official correspondent of the Institute, Mr JUAN B. MARCHIONATTO, Agronomical ' Ingenieur ', Director of ' Sanidad Vegetal ', Ministry of Agriculture, Buenos Aires, Argentine Republic.

The effects of rust are well known. It attacks the leaves, exhausting reserve material and finally causing leaf fall; however, the duration of this process varies from one to several months, and depends on the intensity of the attack. To replace the fallen leaves, the plant produces further foliage which is attacked by the parasite which may bring about a repetition of the leaf fall phenomenon. The oldest trees containing a greater quantity of accumulated reserve material are better able to resist this disease.

By its mode of operation poplar rust does not kill off the plants but its effects will be especially felt in the wood whose growth will be retarded in the years following the attack

There is no doubt that the existence of other diseases such as ' viruela ' (*Septoria populi*) and ' antracnosis ' (*Sphaceloma populi*) which make their appearance with a certain frequency accompanying the poplar rust aggravates its harmful action, however, even so, it cannot be maintained *a priori* that the disease kills off the plants. The ' manchas ' of dried up poplars have another origin and the cause is being investigated at the Phytopathological Laboratory, Campana.

Finally, the above-said Commission does not consider the immediate cutting down of the trees attacked by rust necessary and agrees that the islanders before adopting any remedy whatsoever, must await the results of a study for finding an adequate solution to the problem of the periodical appearance of the disease.

The following members of the aforesaid Commission participated in this tour: Mr. Juan B. Marchionatto, Agronomical ' Ingenieur ', Director of ' Sanidad Vegetal '; Mr. Franco E. Devoto, Agronomical ' Ingenieur ', Chief of the Technical Section of Forests of the ' Direccion de Tierras '; Mr. César Cornell, ' Agrónomo Regional ' of the Delta; Dr. Luis Müller and Don Angel Ruiz, representatives of the farmers of the Delta.

Brazil: New Plant Diseases Reported in the State of Minas Geraes during 1936 *

Amygdalus persica	*Exoascus deformans* (Berk.) Fuck. at Itajubá
Brassica oleracea var *capitata*	*Botrytis* sp.
Capsicum annuum	*Bacillus carotovorus* Jones.
C. microcarpum	*Puccinia paulensis* Rangel. Mosaic (severe attack).

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* Communication from Mr ALBERT S MÜLLER, formerly Professor of Phytopathology at the Higher School of Agriculture and Veterinary Science, Viçosa, State of Minas Geraes, Brazil, now Phytopathologist at the Central Experiment Station of the Ministry of Agriculture and Stock Breeding, Caracas, Venezuela.

Citrus sp.	*Corticium salmonicolor* Berk. and Broome at Lavras (severe attack). Psorosis at Viçosa, Ponte Nova, Bello Horizonte and Lavras. Chlorosis at Leopoldina.
Crotalaria juncea	*Ceratostomella fimbriata* (E. and H.) Elliott (severe attack).
Daucus carota	*Cercospora carotae* (Pass.) Kazn. and Siem.
Delphinium sp.	*Sclerotium rolfsii* Sacc.
Gossypium sp.	*Scler. rolfsii* Sacc.
Lycopersicum esculentum	*Scler. rolfsii* Sacc.
Nerium oleander	*Botrytis* sp.
Tagetes sp.	*Botrytis* sp.
Vitis sp.	*Oidium tuckeri* Berk at Bello Horizonte (severe attack). *Sphaceloma ampelinum* De By.

Egypt: Occurrence and Movements of Locusts in the Country *

On June 19th, 1937, locusts were reported from Mersa Matruh in the northern part of the Western Desert. A sample sent proved on identification to contain adults and nymphs of *Schistocerca gregaria*, Forsk., both of the migratory and solitary phases. The whole region extending from Amria (Lat. 31° Long. 29° 50) to Sellum on the Western frontier and to Siwa Oasis in the South (Lat. 29° 15 Long. 25°) revealed the presence of both phases of *Schistocerca* in their different nymphal instars as well as adults in more than thirty localities scattered along the coastal region of that part of the desert. Fresh hatching took place practically in every locality during the period from June 21st to June 30th. No exact information is yet available regarding the origin of this locust invasion although rumour has it that some *Schistocerca* appeared this spring on the other side of the Western frontier namely in Tripoli and that they were controlled. This point is being investigated at present.

Infestation is not dense, the areas being separated, varying in size and population.

Heavy rains have fallen in this part of the Western Desert during April, 1937 when barley cultivations were about to be harvested.

The main control methods adopted are baiting, spraying and burning.

The locusts take refuge on and under desert shrubs where one or other method is applied according to circumstances.

No serious damage has yet occurred to the scanty cultivations of this area.

Other parts of the desert are being scouted by car and camel patrols.

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* Communication from the Director of the Entomological Section, Ministry of Agriculture, Egypt to the International Institute of Agriculture.

Eritrea: Locusts *

During the months of April and May, 1937, no locust movements were reported throughout the Colony.

Irish Free State: A New Outbreak of *Peronospora antirrhini* in the Country †

The parasitic fungus *Peronospora antirrhini* Schroet. was found for the first time attacking seedlings of the cultivated *Antirrhinum majus* in a nursery at Carlow, Ireland, in May, 1936. The attack was a severe one, 50,000 plants being destroyed. Immediate steps were taken to deal with the outbreak by destruction of the plants, fumigation, cleaning and disinfection of houses, by provision of new frames and boxes, and disposal of the contaminated soil at a distance. It was hoped that the eradication was successful, for a splendid crop of 25,000 plants was raised in the nursery in 1937 without any sign of disease, but unfortunately right at the end of the season the mildew again appeared on a few of the last plants to be grown.

In most cases the growing points of the seedlings are killed back first and the lower leaves then wither from the tip backwards. Before this stage is reached indefinite pale areas develop on the leaves, and these show the presence of a fine and almost invisible whitish mildew on the lower surface. The conidiophores are $250\ \mu$ high, and the conidia are hyaline and oval, $26 \times 17.5\ \mu$. Resting spores $30\ \mu$ in diameter are formed in the leaves and the fungus survives by means of these in vegetable refuse and soil.

The attack is worst during April and May, and experience up to the present indicates that if the disease is controlled in the seedling stage, the plants may afterwards grow and flower almost normally. The dark-coloured varieties appear to suffer most.

The original source of the infection cannot be traced. Antirrhinum plants were imported to the nursery in question in 1935, but there is no evidence that these were affected, and the disease has not been recorded in the country of their origin.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) §

During the month of February, 1937, the North of the Colony continued to be attacked although only in a slight degree. In the central region, in the Zambezi Province and chiefly in Barué, considerable hopper bands have been reported.

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* Communication from Dr Luigi M. Bologna, Chief in Charge of the Agricultural Bureau of Eritrea, Asmara, transmitted to the International Institute of Agriculture by the Government of the Colony.

† Communication from the official correspondent of the Institute, Dr. Paul A. Murphy, Albert Agricultural College, Glasnevin, Dublin, Irish Free State

§ Communication from Mr Júlio Gardé Altaro Cardoso, Chief of the Section of Entomology, Lourenço Marques, transmitted to the Institute by the 'Repartição Técnica de Agricultura' of the Colony.

In the South, no information was obtainable owing to the inundations caused by the heavy rains occurring during the month.

It is known that hopper bands had made their appearance, many of which on the borders of the rivers, and consequently must have disappeared during the inundations.

Control operations have just been terminated.

Southern Rhodesia: Locust Invasion, 1932-1937 *

Monthly Report No. 54. May, 1937.

The winged swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) reported as having appeared in the North Eastern districts of the Colony during last month have remained throughout May confined to practically the same area.

The districts mentioned during May are Lomagundi, Mazoe, Inyanga, Makoni, and Salisbury township itself towards the end of the month.

Considerable local damage has been reported in one part of the Inyanga district, due to several swarms which had lingered in the vicinity for a week or more.

Whilst no locust hoppers are known to have appeared in swarm formation on the higher veld during the past season, several specimens of last stage solitary hoppers of the Red Locust were taken in the Mazoe district during May, indicating breeding by scattered adults.

Italian Somaliland: Locusts †

No locust movements were reported in the Colony during the month of April, 1937.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Algeria. — A Decree of the Governor General, dated 25 March, 1937, relative to the shipment of Algerian potatoes abroad, establishes, *inter alia*, that the tubers intended for export shall be sound and free from diseases which lower their value.

The phytopathological certificates established by the Plant Protection Service of the Government General for Algerian potatoes intended for export, will not be issued unless on presentation of the control certificate of the Algerian Office of economic and tourist movement ('Ofalac'). (*Journal officiel de l'Algérie*, Alger, 2 avril 1937, 11e année, nº 14, p. 337-338).

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* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

† Communication from Dr. FERRANTE PÀVERI-FONTANA, Chief in Charge of the Bureau of Agriculture of Italian Somaliland, Mogadiscio, transmitted to the International Institute of Agriculture by the Government of the Colony.

Germany. — Two Decrees of 15 April, 1937, relative to the outbreak of the Colorado beetle (*Leptinotarsa decemlineata*) restrict the dispositions regarding the protection and control measures against this insect.

The first of these Decrees gives general dispositions which will be applied to a zone definitely delimited in an appendix of this Decree and nominated danger zone ('Gefahrzone') Within this zone, all lands under agricultural, vegetable and horticultural crops, and in particular, those grown with potatoes, tomatoes, egg-plants and other solanaceous plants are subjected to an official control

The technical management and the control of protective measures has been transferred from the Corporation of Agriculture ('Reichsnahrstand') to a special Service ('Kartoffelkäferabwehrdienst') organized for this purpose.

Every land owner and also any other person who may have noticed the presence of the Colorado beetle or any symptoms which might possibly denote the presence of this insect are obliged to make an immediate declaration to this effect.

In order to ascertain the eventual presence of the Colorado beetle, it will be possible for the competent authorities to organize control inspections at determined periods.

Every proprietor of land cultivated with potatoes and tomatoes is obliged to examine his crops at fixed intervals, in order to ascertain the possible presence of the Colorado beetle.

The second Decree deals with control measures which will apply to the region definitely delimited in an appendix of this Decree and considered as being an infested region.

The proprietors and tenants of fields cultivated with potatoes situated in this region are obliged to make repeated applications of calcium arsenate The special protection Service will notify the period during which this treatment must be carried out; the said Service will also indicate the method to be adopted and will control the carrying out of the technical operations. This Service is authorized to execute this operation direct, at the expense of the persons interested.

The tops of potato plants which have not been treated with calcium arsenate must not be utilized as stable litter (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Mai 1937, Bd IX, Nr. 4, S 81-85).

Argentine Republic. — The Decree No. 105,000 of 4 May, 1937 establishes that the Decree No 82,526 of 15 May, 1936 [see this *Bulletin*, 1936 No. 10, p 223] relative to seed production of Sudan grass [*Sorghum vulgare* var. *sudanense*], and sweet sorghum [*S. vulgare* var *saccharatum*], will come into force on 1 July, 1937. (*Boletín Oficial de la República Argentina*, Buenos Aires, 28 de mayo de 1937, año XLV, núm. 12 862, pág. 6645).

⁂ By Decree No. 105.155 of 5 May, 1937, the ' Dirección de Defensa Agrícola ' is charged of the sale of barriers to farmers for the control of the South American locust [*Schistocerca paranensis*]. (*Ibid*).

Egypt. — A Decree of 14 April, 1937, determines the tariff of the costs in spraying trees attacked by the scale insects *Chrysomphalus ficus*, *Lepidosaphes pinnaeformis* and *Chrys. personatus* [= *Aonidiella personata*]. (*Journal officiel du Gouvernement égyptien*, Le Caire, 26 avril 1937, 64$^{\text{ème}}$ année, n^{o} 35, p. 3).

United States of America. — By the revised rules and regulations supplemental to Notice of Quarantine No. 63, on account of the white pine blister rust (*Cronartium ribicola* Fischer), Maryland, Ohio, Pennsylvania, and Wisconsin are added to the list of States which have established blister rust control areas wherein both the planting and possession of currant and gooseberry plants (plants, cuttings, or scions, belonging to the genera *Ribes* L. and *Grossularia* [Tourn.] Mill., including cultivated or wild or ornamental sorts) are prohibited under State authority.

The conditions under which Federal pine-shipping permits may be issued are modified so that permits may be granted to authorize the interstate movement of five-leaved pines (*Pinus ayacahuite*, *P. aristata*, *P. balfouriana*, *P. flexilis*, *P. strobiliformis*, *P. lambertiana*, *P. monticola*, *P. albicaulis*, *P. strobus*, *P. peuce*, *P. armandi*, *P. excelsa*, *P. parviflora*, *P. koraiensis*, and *P. cembra*) which have not been raised from seed under Ribes-free conditions when in the judgement of the Bureau of Entomology and Plant Quarantine there is little or no risk of such pines being involved in blister-rust infection.

The regulations pertaining to five-leaved pines are also revised to prohibit their interstate movement when visibly infected with the white pine blister rust unless such trees are shipped in a preservative or are authorized by the United States Department of Agriculture.

These revised rules and regulations have been approved on 16 February, 1937 and are effective on and after 1 March, 1937 (*B. E. P. Q. - Q. 63*, [Washington, D. C.], 1937, 6 pp.).

⁂ Pursuant to authority vested in the Bureau of Entomology and Plant Quarantine under regulation 6 of the revised rules and regulations supplemental to Notice of Quarantine No 61, revised, which provides that permits may be issued for the interstate movement of cottonseed from the regulated area on such conditions as may be prescribed by that Bureau, the Bureau hereby approves the following alternative treatment for cottonseed and permits may be issued for the interstate movement of cottonseed so treated —

When the cottonseed has been sterilized to 145° F. as a part of the continuous process of ginning, and in addition has been treated by sulphuric acid and screening, and subsequently has been protected from contamination in a manner satisfactory to the inspector. (*B. E. P. Q. — 436*, Washington, D. C., April 1, 1937, 1 p. [Mimeographed]).

⁂ A joint Resolution of the Congress approved on 6 April, 1937, makes the sum of $ 2,000,000 available for the control of incipient or emergency outbreaks of insect pests or plant diseases, including grasshoppers [*Acrididae*], Mormon crickets [*Anabrus simplex*], and chinch bugs [*Blissus leucopterus*]. (*Public Resolution — No. 20 — 75th Congress. Chapter 69 - 1st Session. S. J. Res. 75*, [Washington, 1937], 1 p.).

France. — A Ministerial Decree of 30 April, 1937 delimits the zones declared infested with the Colorado beetle [*Leptinotarsa decemlineata*] and also the protection zones.

The Ministerial Decrees regarding previous delimitations are annulled. (*Journal officiel de la République française*, Paris, 19 mai 1937, LXIXe année, nº 114 p. 5420-5433).

Italy. — The Royal Decree-Law No. 784 of 19 April, 1937, promulgates the Commercial Agreements made between Italy and Argentine Republic, signed at Buenos Aires, 4 March, 1937.

According to Article 3 of the Additional Protocol to the Commercial Convention between Italy and Argentine Republic, of 1 June, 1894. the high contracting parties undertake not in any way to interfere with the mutual trade by prohibitions or restrictions regarding imports, exports or transit. However, some exceptions to this rule, on the condition that such exceptions should be applicable to all foreign countries or to countries sustaining identical conditions may be made, *inter alia*, for reasons of public health, and for the purpose of protecting animals and useful plants against diseases, insects and parasites. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 7 giugno 1937, anno 78º, n. 130, pp. 2078-2080).

⁂ By Decree of the Minister of Finance, dated 12 May, 1937 the application of the exchange duty at the reduced rate of 0.50 lire, is extended, from 1 June, 1937, to the parasiticides ' Coccidol ' and ' Fitodrin '. (*Ibid.*, 7 giugno 1937, n. 130, p. 2084).

⁂ By Decree of the Minister of Finance, dated 19 April, 1937, the application of the exchange duty, at the reduced rate of 0.50 lire per cent., is extended from 1 May, 1937 to the parasiticide ' Volck Invernale '. (*Ibid.*, 8 giugno 1937, n. 131, p. 2104).

⁂ By Ministerial Decree of 27 April, 1937, the common bee-eater (*Merops apiaster*) is included in the list of harmful animals, in virtue of the measures of Art. 4 of the sole text of the Laws and Decrees regarding the protection of game and shooting, approved by Decree No. 117 of 15 January, 1931, exclusively in the districts where apiculture is practised on a large scale. and where this bird abounds as a result of favourable climatic conditions and environment.

The shooting and capture of this species of bird are only authorized within a radius of 500 metres of the apiary, and are in order even when the shooting season is closed, according to the dispositions indicated in Art. 26 of the aforesaid text. (*Ibid.*, 11 maggio 1937, n. 108, p. 1733).

⁂ By Ministerial Decree of 30 April, 1937, the Ministerial Decree of 28 February, 1934 [see this *Bulletin*, 1934, No. 4, p. 81] which included wild-rabbits among noxious animals in the commune of Naro, Agrigento Province, is repealed. (*Ibid.*, 12 maggio 1937, n. 109, p. 1747).

⁂ By two Ministerial Decrees of 4 May, 1937, the territories of the communes of Cavriglia and Loro Ciuffenna, Arezzo Province, and S. Arcangelo di Lucania and Gallicchio, Potenza Province, have been declared infested by grape phylloxera. (*Ibid.*, 9 giugno 1937, n. 132, p. 2118).

⁂ By three Ministerial Decrees of 31 May, 1937, have been established the technical regulations to be observed in the export of peaches, plums and table grapes respectively.

These stipulate, *inter alia*, that it is forbidden to despatch fruits which are not sound, and in the case of peaches, fruits affected with ' mal della scatola ' evident from the external appearance. (*Ibid.*, 11 giugno 1937, n. 134, pp. 2160-2169).

Morocco (French Zone). — By Decree of the Director of Economic Affairs, dated 5 April, 1937, the list of countries infested by the Colorado beetle [*Leptinotarsa decemlineata*] enumerated in Article 1 of the Decree of 3 September, 1936 [see this *Bulletin*, 1936, No. 11, pp. 246-247], is completed as follows:—

' ....Germany, Luxemburg '. (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin officiel*, Rabat, 23 avril 1937, XXVI^e année, n^o 1278, p. 558).

⁂ A Decree of the Director of Waters and Forests, dated 29 April, 1937, authorizes the destruction of boars causing considerable damage to the crops grown in the district of the posts of civil control Tedders and Oulmès. (*Ibid.*, 7 mai 1937, n^o 1280, p. 654).

Nicaragua. — By Law of 28 July, 1936, the proprietors, lessees or all occupiers of land under cotton cultivation, are obliged to carry out the following measures for the control of the ' picudo ' (*Anthonomus*) of cotton:—

(*a*) Treating the seeds used for planting with carbon disulphide at the minimum rate of 100 grams per cubic metre of the fumigation chamber If carbon disulphide is unavailable, the seeds shall be treated with hydrocyanic acid gas in the proportion of 60 grams per cubic metre of the fumigation chamber

(*b*) Destroying the cotton shrubs growing outside the cultivated fields, as well as wild cotton plants and all other Malvaceae, growing in the vicinity of same, in order to prevent them acting as host plants for the ' picudo ', and consequently being a menace to the plantations, at the same maintaining the cultivated area free from all other weeds.

(*c*) Applying sprays when the insect makes its appearance.

(*d*) Completely destroying the cotton plants and freeing the field from all noxious weeds, immediately after harvesting, burning all debris.

(*e*) Not utilizing the cuttings or twigs of the cotton plant.

The sowing of seed not previously disinfected is prohibited. In the same way, all persons who sell or regale cotton seed for sowing, for the extraction of the oil or for any other industrial purpose, are obliged to notify the Ministry of Agriculture with regard to the quantity sold or given, and also the name and residence of the person receiving same. It also remains compulsory to burn all excess seed remaining after harvesting. (*La Gaceta*, Managua, D. N., 22 de diciembre de 1936, año XL, núm. 281, págs. 2425 y 2426).

Peru. — It having been ascertained that the avocado [*Persea gratissima*] plantations of the Moquegua and Ica valleys are attacked by anthracnose (*Physalospora perseae*), by Resolution of 16 February, 1937, the said disease is declared to be a pest to national agriculture.

The control of this disease in the avocado orchards situated in the afore-mentioned valleys is compulsory, which measures shall be directed by the technical staff of the Agricultural Services of the respective valleys.

In the export of avocado pears from the valleys of Maquegua and Ica to Chile, it is indispensable to obtain in advance a health certificate from the respective Agricultural Services. The said certificates may only be granted after special experts have proved that in the valleys from which the fruits originate, the cankers produced by the fungous parasite have been destroyed and that a systematic elimination is being carried out. (*La Vida Agricola*, Lima (Perú), abril 1º. de 1937, vol. XIV, nº 161, págs. 345 y 346).

Italian Somaliland. — By Decree of the Governor, No. 12257 of 11 January, 1937, an Agricultural Station has been established at Jonte with the object, *inter alia*, of carrying out the phytosanitary control of bananas intended for export. (*Bollettino ufficiale della Somalia italiana*, Mogadiscio, 31 gennaio 1937, anno XXVII, n. 2, p. 27).

Tunis. — By Decree of the Director of Economic Affairs dated 17 April, 1937, the Service of Botany and Agronomy is authorized to grant to farmers who submit their early wheat crops to examination and make a request to this effect, a certificate testifying that the wheat offered for sale originates from seed treated by heat against loose smut [*Ustilago tritici*] and that it is in a satisfactory healthy condition.

Only the wheat obtained from seed treated by heat and in which the percentage of loose smut does not exceed 0.5 per cent. will be given a certificate of health guarantee. (*Journal Officiel Tunisien*, Tunis, 30 avril 1937, 55ᵉ année, nº 35, p. 559).

RECENT BIBLIOGRAPHY

ADAM, D. B. Notes on plant diseases in South Australia during the two-year period, 30th June, 1936. *The Journal of the Department of Agriculture of South Australia*, Adelaide, 1937, Vol. XL, No. 9, pp. 732-734.

ADAM, D. B., and COLQUHOUN, T. T. Barley diseases in South Australia and their control. *The Journal of the Department of Agriculture of South Australia*, Adelaide, 1937, Vol. XL, No. 10, pp. 787-792, 1 fig.
[*Ustilago hordei, U. nuda, Helminthosporium gramineum*].

AMBROS, Wilh. Nonnenfalterkontrolle auf biologische Grundlage. *Centralblatt fur das gesamte Forstwesen*, Wien 1937, 63 Jahrg., Heft 5/6, S. 140-151, 4 Abb. [*Lymantria monacha*].

ANGELL, H. R., HELY, F. W., and ALLAN, F. E. The effect of *Urocystis tritici* Koern. on the extent of development of the roots and aerial parts of the wheat plant. I. *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1937, Vol. 10, No. 2, pp. 136-142. Literature cited, p. 142.

ASKEW, H. O., and THOMSON, R. H. K. Occurrence of internal cork of apples in Central Otago, New Zealand. *The New Zealand Journal of Science and Technology*, Wellington, N. Z., 1937, Vol. XVIII, No. 8, pp. 661-664.
[A pitting of apple fruits in Central Otago is considered to be identical with internal cork of apples in the Nelson District. Incidence of ailment is correlated directly with low boron content of soil and fruits].

AZEVEDO, Nearch. Observações sobre uma doença de virus em tomateiro. *Rodriguésia*, Rio de Janeiro, 1936, anno II, nº 6, pags 209-212, est. 1-8. Bibliographia citada, pag. 212.

BENNETT, C. W. Correlation between movement of the curly top virus and translocation of food in tobacco and sugar beet. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 7, pp. 479-502, figs. 1-6. Literature cited, pp. 501-502.

BERGOLD, Gernot, und RIPPER, Walter. Perilampus tristis Mayr als Hyperparasit des Kieferntriebwicklers (Rhyacionia buoliana Schiff.) *Zeitschrift fur Parasitenkunde*, Berlin 1937, 9 Bd., 3. Heft, S. 394-417, Abb. 1-19. Literaturverzeichnis, S. 417.

BERTRAND, Gabriel. Sur la constitution et la conservation par la chloropicrine du stock de blé dit "de sécurité". *Annales de l'Institut Pasteur*, Paris, 1937, t. 58, nº 5, p. 481-497, fig. 1-8.
[The destruction of insects and rodents by means of chloropicrin is most effective. The use of this product necessitates storehouses which may easily be made air-tight. In this way, all parasites can be eliminated, without requiring any shovelling or manipulation of the grain, and this method is very economical, if suitable premises are available].

BETREM, J. G., en OSTENDORF, F. W. Resultaten van Helopeltis-vangproef MJ 373 over de periode Januari 1935 tot en met November 1936. *De Bergcultures*, Batavia 1937, 11e jaarg., no. 23, blz. 835-840, fig. 1-2.

BONGINI, Virginia. Semi da giardino veicolo di cuscuta. *Bollettino del Laboratorio sperimentale e Regio Osservatorio di Fitopatologia*, Torino, 1936, anno 13°, nn. 5-6, pp. 58-61, 2 tav. Bibliografia, p. 61.
[Seeds of *Cuscuta pentagona* var. *calycina* mixed with those of *Dianthus sinensis, Tagetes erecta* and *T. patula*].

Bouhelier, R. Chloroses des aurantiacées: foliocellosis et maladies de carence. *Fruits & Primeurs de l'Afrique du Nord et la Revue Française de l'Oranger*, Casablanca, 1937, 7me année, n° 74, p. 143-146, 1 fig.

Branas, Jean, et **Bernon**, Georges. Recherches sur les poudres cupriques. (Premier mémoire). *Revue de Viticulture*, Paris, 1937, 41e année, tome LXXXVI, n° 2238, p. 367-374, 1 diagr.

Brien, R. M. The fungi associated with mouldy core of apples. *The New Zealand Agricultural Journal*, Wellington, N. Z., 1937, Vol. 54, No. 5, pp. 283-286, fig. 1. [*Gloeosporium perennans*, *Fusarium lateritium* var. *fructigenum*, *Alternaria tenuis*, *Rhizopus* sp., *Pleospora* sp., etc.].

Burkholder, Walter H. A bacterial blight of iris. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 5, pp. 613-621, fig. 1. Literature cited, p. 621. [*Phytomonas tardicrescens* (McCulloch) n. comb. on *Iris* spp.].

Chen, Kia-ziang. Preliminary test on the use of tobacco powder for controlling rice insects. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. V, No. 10, pp. 178-188.

[In Chinese, with title and summary also in English — *Nisia atrovenosa*, *Naranga aenescens*, *Chilo simplex*, *Schoenobius incertellus*, etc.].

Chen, Kia-ziang, & **Chang**, Jo-chih A survey on the damage of the late variety of rice caused by rice borers at Kashing in 1935 and 1936. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. 5, Nos. 4-6, pp. 103-111, 2 diagrms.

[In Chinese, with title also in English].

Chester, K. Starr. A simple and rapid method for identifying plant viruses in the field. *Phytopathology*, Lancaster, Pa., 1937, Vol 27, No. 6, pp. 722-727 fig 1.

Chevalier, Aug[uste]. Sur une groupe de plantes insecticides· les *Stemona* d'Indochine. *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17e année, n° 186, p 136-137 Bibliographie, p. 137.

Chu, Joo-tso. Notes on the hymenopterous parasites of the pine caterpillar, *Dendrolimus punctatus* Walker, in China *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. 5, Nos. 4-6, pp. 56-103, figs. 1-20. [Literature cited], pp 99-103

[In Chinese, with title also in English].

Chu, Joo-tso, & **Hsia**, Shen-hsiu A list of the known hymenopterous parasites of the European corn borer (*Pyrausta nubilalis* Huebner). *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. 5, No. 8, pp 136-147. Literature, pp. 144-147.

[List of 77 species of which 13 existing in China]

Cole, J. R. Bunch disease of pecans. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 5, pp. 604-612, figs. 1-4. Literature cited, p. 612.

[This disease of *Hicoria pecan* is infectious]

Conner, H. A., **Peterson**, W. H., and **Riker**, A. J. The nitrogen metabolism of the crown gall and hairy root bacteria. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 8, pp. 621-628. Literature cited, pp. 627-628 [*Phytomonas tumefaciens* and *Phyt. rhizogenes*].

Cook, Melville T. Records of virus diseases of plants in Puerto Rico. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1936, Vol. XX, No. 3, pp. 681-684.

Cook, Melville T. Phloem necrose in the stripe disease of corn. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1936, Vol. XX, No 3, pp. 685-688, pls. I-II. Literature, p. 687.

COOK, Melville T. Descriptions of virus diseases of plants. criticisms and suggestions. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1936, Vol. XX, No. 3, pp. 689-690.

COOK, Melville T. First supplement to the host index of virus diseases of plants. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R , 1936, Vol. XX, No. 3, pp. 691-727.
[See this *Bulletin*, 1936, No. 3, p 61]

COOK, Melville T. First supplement to the index of vectors of virus diseases of plants. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R , 1936, Vol. XX, No. 3, pp. 729-739.
[See this *Bulletin*, 1936, No 3, p. 61].

COONS, G. H. Progress in plant pathology: control of disease by resistant varieties. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 5, pp 622-632, fig 1

DÉFAGO, G *Cryptodiaporthe castanea* (Tul.) Wehmeyer, parasite du châtaignier. *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 2, S 168-177, fig. 1-6. Ouvrages cités, S 177.

DELEUZE, et DUSSY Action de la cianamide de chaux sur l'évolution du doryphore. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1937, tome XXIII, n° 21, p. 666-672.
[*Leptinotarsa decemlineata*].

DELLA BEFFA, G[iuseppe]. Contributo alla conoscenza degli insetti parassiti dei pioppi L'*Earias vernana* Hb. (nottua delle gemme del pioppo bianco) *Bollettino del Laboratorio sperimentale e Regio Osservatorio di Fitopatologia*, Torino, 1936, anno 13°, nn 5-6, pp 53-58, 2 tav. Bibliografia, p. 58.

DESHPANDE, B P , and NADKARNY, N T The spotted boll-worms of cotton (*Earias fabia* Stoll and *Earias insulana* Boisd) in South Gujarat, Bombay Presidency (Final report on investigations financed by the Indian Central Cotton Committee, 1923 to 1931) *The Imperial Council of Agricultural Research Scientific Monograph No 10*, Delhi, 1936, III + 208 pp , 25 pls References, p 208

DIPPENAAR, B J Cause and control of heat spot of plums *Farming in South Africa*, Pretoria, 1937, Vol XII, No. 131, pp. 83-85.
[Heat spot of plums (' Kelsey spot ') is caused by excessively high internal plum temperature on excessively hot days in the orchard]

DRAGHETTI, A Lineamenti del problema biologico-agrario della difesa contro la cuscuta dei medicai. Il sistema di lotta più conveniente e più efficace il sistema agronomico *Annali di Tecnica Agraria*, Roma, 1937, anno X, fasc II, pp 107-156, 9 figg Bibliografia, pp 153-155
[With summaries in Italian and Latin — *Cuscuta epithymum*]

DRAYTON, F. L. The perfect stage of Botrytis convoluta *Mycologia*, Lancaster, Pa , 1937, Vol. XXIX, No 3, pp 305-318, figs. 1-9 Literature cited, p 317
Sclerotinia convoluta n. sp harmful to the Iris Description in English and diagnosis in Latin]

DYKSTRA, T. P Report on potato virus diseases in 1936 *American Potato Journal*, Sommerville, N J and New Brunswick, N J , 1937, Vol XIV, No 4, pp 117-124. Literature cited, pp 123-124

[EGYPTIAN GOVERNMENT]. Proceedings of the Fourth International Locust Conference. Cairo, April 22, 1936 — Comptes rendus de la quatrième Conférence internationale pour les recherches antiacridiennes Le Caire, le 22 avril 1936 Cairo, Government Press, Bulâq, 1937, 96 pp., 1 pl.
[Text in English and in French]

ELIESCU, Grigore Contribuţiuni la cunoaşterea morfologică şi bionomică a lăcustei Isophya speciosa Friv. *Analele Institutului de Cercetări şi Experimentaţie Forestieră 1935-1936*, Bucureşti 1937, seria I, vol. II, p. 3-36, fig. 1-5, pl. I-IX. Literatură, p. 27-28.
[In Rumanian, with title and summary also in German — ' Beitrag zur Erkennung der Morphologie und Bionomie der Heuschrecken Isophya speciosa Friv. '].

FRAPPA, Cl[aude]. Note sur deux espèces de *Pamphila* nuisibles au riz à Madagascar. *Riz et Riziculture*, Paris, 1937, vol. 11, fasc. 1, p. 19-24. Bibliographie, p. 24.
[See also this *Bulletin*, 1937, No 2, p 39. *P. borbonica* and *P. poutieri*].

FRÉMONT, Thérèse. Extension de techniques employées en pathologie animale à l'étude des réactions de la cellule végétale à certaines infections. *Annales de l'Institut Pasteur*, Paris, 1937, t. 58, n° 5, p. 531-591, fig. 1-3.

GANTE, Th. Zur Biologie des Pflaumenwicklers, *Grapholitha funebrana* Tr. *Anzeiger fur Schadlingskunde*, Berlin 1937, XIII. Jahrg., Heft 5, S. 65.

GAVIRIA MEJIA, Ernesto Algunas enfermedades de las plantas cítricas. *Boletín Agrícola*, Medellín, Colombia, 1937, n° 223, págs 847 à 850.
[*Colletotrichum gloeosporioides*, gummosis, chlorosis]

GEORGESCU, Const C , şi BADEA, M O nouă specie de Cercospora parazită pe ace de Juniperus *Analele Institutului de Cercetări şi Experimentaţie Forestieră . 1935-1936*, Bucureşti 1937, seria I, vol. II, p. 37-47, fig 1-12 Bibliographie, p. 46-47.
[In Rumanian, with title and summary also in German -- ' Eine neue Nadelschutte am Wacholder, Cercospora juniperina Georg. et Bad nov. sp. ' — *C juniperina* is synonymous with *Camarosporium juniperinum*, Georg and Bad A Latin diagnosis of the fungus is appended]

GEORGESCU, Const C , şi BADEA, M Maladia resfrângerii conurilor de molid. Rhynchophoma retroflexa nov sp *Analele Institutului de Cercetări şi Experimentaţie Forestieră 1935-1936*, Bucureşti 1937, seria I, vol. II, p 48-58, fig 1-8.
[In Rumanian, with title and summary also in German ' Die Kruppelzapfenkrankheit der Fichte, Rhynchophoma retroflexa nov sp ' – A Latin diagnosis of this new species is given]

GEORGI, C. D. V , LAMBOURNE, J , and TEIK, Gunn Lay Variations in toxicity of some races of *Derris elliptica The Malayan Agricultural Journal*, Kuala Lumpur, 1937, Vol XXV, No 5, pp 187-200, 1 graph References, p 200.

GIGANTE, R[oberto] Esperienze in campo con acido borico e con tetraborato di sodio *Annali di Tecnica Agraria*, Roma, 1937, anno X, fasc III, pp. 175-192 Bibliografia, pp 191-192
[With title and summary also in Latin — The addition of boron to the soil, either in the form of sodium tetraborate or boric acid, in certain instances, besides facilitating the development of the plants and increasing the crop, may augment the resistance of these plants against some cryptogamic parasites (e g *Puccinia glumarum* on wheat and *Alternaria* sp on potatoes)]

GIGANTE, R[oberto]. La laciniatura da virosi delle foglie di pomodoro. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser., n. 1, pp 87-120, figg. 1-18, tav III Bibliografia, pp. 118-119.
[This virus disease is known in England and in America by the name of fern leaf]

GIMINGHAM, C. T., and NEWTON, H. C. F A poison bait for slugs *The Journal of the Ministry of Agriculture*, London, 1937, Vol XLIV, No. 3, pp. 242-246.

Graves, Arthur H. Sunscald of tulip flowers. *Phytopathology*, Lancaster, Pa , 1937, Vol. 27, No. 6, pp. 731-734, fig. 1.

Green, D. E. Antirrhinum rust III. — Rust-resistant strains of antirrhinums. *Journal of the Royal Horticultural Society*, London, 1937, Vol. LXII, Pt. 5, pp. 214-219.
[*Puccinia antirrhini*].

Hampp, H., and Jehl, J. Zwei neue Methoden zur Prüfung der pilztötenden Wirkung der Hopfenperonospora-Bekämpfungsmittel. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 2, S. 223-229.
[*Pseudoperonospora humuli*].

Hansford, C. G. Annotated host list of Uganda parasitic fungi and plant diseases — Part I. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. II, No. 5, pp. 419-424.

Hansford, C. G. Annotated host list of Uganda parasitic fungi and plant diseases — Part II. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. II, No. 6, pp 498-504.

Harris, W. V. Helopeltis bug. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol II, No 5, pp. 387-390, figs. 1-4. Literature cited, p. 390.
[*Helopeltis bergrothi*].

Hendrickx, Fred L. Les champignons pigmentogènes du bois *Annales de Gembloux*, Auderghem, 1937, 43e année, 4e livr., p. 97-113. Bibliographie, p 111-113.
[*Ophiostoma, Penicillium, Lasiosphaeria, Chlorosplenium, Diplodia* spp , *Sclerophoma entoxylina, Discula pinicola, Hormonema* spp , *Trichosporium* spp., *Hormodendrum* spp , *Cadophora* spp., *Alternaria humicola, Graphium* spp , *Leptographium* spp., *Fusarium* spp., etc].

Higgins, B B., and Wolf, Frederick A Frosty mildew of peach *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 6, pp. 690-696, fig. 1. Literature cited, p. 696.
[*Mycosphaerella persica* n. sp. A Latin diagnosis is appended].

Holmes, Francis O. Inheritance of resistance to tobacco-mosaic disease in the pepper. *Phytopathology*, Lancaster, Pa., 1937, Vol 27, No. 5, pp. 637-642.
[*Capsicum frutescens*].

Honecker, Ludwig. Die Bestimmung der physiologischen Rassen des Gerstenmehltaues (*Erysiphe graminis hordei* Marchal). *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 2, S 196-222, Abb. 1-6. Schriftenverzeichnis, S 222.

Ivanoff, S S., and Keitt, G. W. The occurrence of aerial bacterial strands on blossoms, fruits, and shoots blighted by Erwinia amylovora. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 6, pp. 702-709, figs 1-2.

Jack, Rupert W. Southern Rhodesia. Locust invasion, 1932-37. Monthly Report No. 53. April, 1937. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 6, p. 515.
[*Nomadacris septemfasciata*].

Jancke, O. Ueber die Blutlausanfälligkeit von Apfelsorten, wilden Malusarten und -bastarden, sowie die Zuchtung blutlausfester Edeläpfel und Unterlagen. *Phytopathologische Zeitschrift*, Berlin 1937, Bd X Heft 2, S. 184-196 Abb 1. Scriftenverzeichnis, S. 196.
[*Eriosoma lanigerum*].

Jensen, James H. Chlorosis of citrus in Puerto Rico *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 6, p. 731.

JOHNSON, Folke, and JONES, Leon K. Two mosaic diseases of peas in Washington. *Journal of Agricultural Research*, Washington, D C., 1937, Vol. 54, No. 8, pp. 629-638, figs. 1-5. Literature cited, pp 637-638.
[Enation mosaic and severe mosaic].

JONES, Fred Reuel. A foliage yellowing and floral injury of alfalfa associated with heath and drought *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 6, pp. 729-730

KELSEY, J. M. The ragwort leaf-miner (*Phytomyza atricornis* Mg.) and its parasite (*Dacnusa areolaris* Nees) *The New Zealand Journal of Science and Technology*, Wellington, N. Z, 1937, Vol XVIII, No 10, pp 762-767.

KLEBAHN, H. Untersuchungen uber die Krahkheiten des Meerrettichs II Bericht. *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 2, S 121-167, Abb 1-16. Literatur, S 166-167
[*Verticillium, Albugo candida*, etc]

KÔCK, G[ustav] Nichtparasitare Kakteenkrankheiten *Gartenzeitung der osterreichischen Gartenbau-Gesellschaft*, Wien 1937, Nr 6, S 71-72

KOTTHOFF, P Fur Deutschland neue Wirtspflanzen der *Anguillulina dipsaci* (Kuhn). *Anzeiger fur Schädlingskunde*, Berlin 1937, XIII Jahrg , Heft 5, S 60-63, Abb 1-3.
[Hemp, carrot, pumpkin]

KREIS, Hans A A nematosis of sweet potatoes caused by Anguillulina dipsaci, the stem or bulb nema *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No 6, pp 667-690, figs 1-6 Literature cited, pp 689-690.

KRENEIS Auftreten von *Coniothyrium diplodiella* (Weissfäule) in Jugoslavien *Das Weinland*, Wien 1937, IX Jahrg , Nr 6, S 184-185

KRIEG, H Lebensweise und Bekampfung des Maikafers *Forschungsdienst*, Neudamm und Berlin 1937, Bd 3, Heft 10, S 507-515 Schrifttum, S 512-515
[*Melolontha*]

KU-YUANG A few problems on the insecticides in China *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol V, No 11, pp 205-210
[In Chinese with title also in English]

LAIDLAW, W B R *Aphidecta obliterata*, Linn (Coccinellidae) its efficiency as a control factor of *Adelges cooleyi*, Gillette *The Scottish Forestry Journal*, Edinburgh, 1937, Vol 51, Pt 1, pp 47-58 References, p 58

LEPESME, Pierre Action de *Bacillus prodigiosus* et *Bacillus pyocyaneus* sur le criquet pèlerin (*Schistocerca gregaria* Forsk) *Comptes rendus de seances de la Société de Biologie et de ses filiales et associées*, Paris, 1937, tome CXXV, nº 19, p 492-494.

LEPIK, E Eine durch *Sclerotinia sclerotiorum* verursachte Kartoffelinnenfäule *Phytopathologischen Zeitschrift*, Berlin 1937, Bd X, Heft 2, S 231, 1 Abb

LI, Feng-swen On some control measures of the cotton insect pests of China. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol V, No 1, pp 2-10
[In Chinese, with title also in English]

LI, Feng-swen, [and] CHOU, Shao-mu The distribution of important cotton insects recorded in Chinese literature *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. V, Nos 15-16, pp 282-302, figs 1-15 Important literature cited, pp 292-294
[In Chinese, with title and summary also in English]

LING, Lee, and MOORE, M B Influence of soil temperature and soil moisture on infection of stem smut of rye *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No. 5, pp 633-636 Literature cited, p 636
[*Urocystis occulta*]

Lui, Ho-chang. Notes on the investigations of the pine caterpillar (*Dendrolimus* sp.) in the Forestry Experiment Station, Li Shui Hsien, Chekiang. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. V, No. 13, pp. 240-246, 1 map.
[In Chinese, with title and summary also in English].

Luthra, Jai Chand, Sattar, Abdus, and Ghani, M. Abdul. A comparative study of species of *Septoria* occurring on wheat. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. II, pp. 271-289, figs. 1-3, pls. XV-XVIII. References, p. 289.
[*Septoria tritici*, *S. nodorum* and *Septoria* sp.].

Malençon, G., et Yen, W.-Y. Une nouvelle espèce de Sorosporium. *Revue de Mycologie*, Paris, 1937, tome II (n. s.), fasc. 3 et 4, p. 130-131, fig. 1-2.
[*Sorosporium punctatum* n. sp. on *Panicum repens* in Morocco (French Zone). A Latin diagnosis of this new species is given].

Malenotti, E[ttore]. Distruzione della Cydia molesta svernata nei magazzini. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 26, p. 233, 1 diagr.

Malenotti, E[ttore]. Soziales Zusammenwirken bei der Bekämpfung der Pflanzenkrankheiten. (Aus dem Italienischen übertragen von A. Klostermann). *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 7, S. 401-411.

Manil, P. L'enigme des virus. *Annales de Gembloux*, Auderghem, 1937, 43^{e} année, 5^{e} livr., p. 145-163.

Mathur, C. B., and Soni, B. N. Studies on *Schistocerca gregaria* Forsk. IX. Some observations on the histology of the blood of the desert locust. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. II, pp. 317-325, pls. XVIII-XIX. References, p. 325.

Maughan, Frank B. Varietal differences in insect populations and injuries to potatoes. *American Potato Journal*, Sommerville, N. J., and New Brunswick, N. J., 1937, Vol. XIV, No. 5, pp. 157-161.

McCulloch, Lucia. Bacterial leaf spot of begonia. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 8, pp. 583-590, fig. 1. Literature cited, pp. 589-590.
[*Bacterium flavozonatum* n. sp. Description of this new species in English]

Meyer, E. Beobachtungen über „Weizenwanzen" in der Kölner Bucht. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 6, S. 321-338, Abb. 1-7. Schrifttum, S. 337-338.
[*Eurygaster maura*, *E. acuminata*].

Mezzetti, A. Un marciume di alcune varietà di pere. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser., n. 1, pp. 121-146, figg. 1-7. Bibliografia, pp. 145-146.
[*Alternaria tenuis*, *Macrosporium commune*].

Miller, D., Clark, A. F., and Dumbleton, L. J. Biological control of noxious insects and weeds in New Zealand. *The New Zealand Journal of Science and Technology*, Wellington, N. Z., 1937, Vol. XVIII, No. 7, pp. 579-593.
[Contains:—
I. Introduction, by D. Miller.
II. Biological control of noxious weeds, by D. Miller.
III. Biological control of forest insect pests, by A. F. Clark.
IV. Biological control of orchard insect pests, by L. J. Dumbleton.
V. Biological control of field crop and animal pests, by D. Miller].

Mitchell, R. S. Stem end rot of bananas with special reference to the physiological relationships of *Thielaviopsis paradoxa* (De Seynes) von Hohn *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1937, Vol. 10, No. 2, pp. 123-130, fig. 1. References to literature, p. 130.
[The trinomial *Thielaviopsis paradoxa musarum* n. var. is suggested for the banana strain as it occurs in Australia, in order to distinguish it from other strains of *T. paradoxa*]

Monticelli, F. Peronospora della vite ed Osservatori antiperonosporici *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1937, anno 83° e 63°, n. 12, pp. 228-232
[*Plasmopara viticola*].

Montoro Guarch, Arturo El tumor en la remolacha *La Propaganda Rural*, Montevideo, 1937 año XXXV, n.º 807 pág. 54, 3 figs
[The disease caused by *Urophlyctis leproides* made its appearance during the months of October and December, 1936, attacking *Beta vulgaris* var. *cicla*]

Mujica R., Fernando El "nudo seco" de la papa causado por la Rhizoctonia Los efectos que provoca en el organismo vegetal el agente que causa esta enfermedad *Boletin del Ministerio de Agricultura*, Santiago de Chile, 1936, año IV, n.º 10, págs. 31 a 35, 1 fig
[*Rhizoctonia solani*]

Murphy, Donald M., and **Pierce**, W. H. Common mosaic of the garden pea, Pisum sativum *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 6, pp. 710-721, figs. 1-2 Literature cited, p. 721

Nel, R. I., and **Stubbings**, W. A. K. Pear bud mite *Farming in South Africa*, Pretoria, 1937, Vol. XII No. 135, pp. 233-234, figs. 1-3
[*Eriophyes pyri*]

Orozco, Jr., Manuel La palomilla de la papa (*Phthorimaea operculella*) *El Agricultor Mexicano*, Ciudad Juarez, Chih. 1937, tomo 53, núm. 5, págs. 12 a 15
[The potato moth is found in Mexico in the State of Guanajuato and probably also in Chihuahua State]

Osborn, H. T. Studies on the transmission of pea virus 2 by aphids *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 5, pp. 589-603, figs. 1-4 Literature cited, p. 603
[*Macrosiphum pisi*, *M. gei*, *Aphis rumicis*]

Otero, Jose I., and **Cook**, Melville T. Second supplement to partial bibliography of virus diseases of plants *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1936, Vol. XX, No. 3, pp. 741-803.
[See this *Bulletin* 1936, No. 3, p. 67]

Ott, A. L'uso degli oli minerali quali insetticidi *Note di Frutticoltura*, Pistoia, 1937, anno XV, n. 5, pp. 78-83, n. 6, pp. 91-95 n. 7, pp. 101-106

Park, Malcolm, and **Fernando**, M. Some studies on tobacco diseases in Ceylon — I *The Tropical Agriculturist*, Peradeniya, Ceylon, 1937, Vol. LXXXVIII, No. 3, pp. 153-168, pls. I-II References to literature, p. 168
[*Pythium* sp., *Cercospora nicotianae*].

Passecher, F. Unkrautpilze auf Champignonbeeten *Gartenzeitung der österreichischen Gartenbau Gesellschaft*, Wien 1937, Nr. 5, S. 53-54, Fig. 30-33.
[*Coprinus* spp. and especially *C. lagopus*, *Pleurotus passeckerianus*, *Clitocybe dealbata*, *Peziza vesiculosa*]

Petit, Albert. Le traitement des semences de blé tendre contre *Ustilago tritici*. Trempages du courte durée dans l'eau chaude. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1937, tome XXIII, nº 21, p. 672-678.

Petri, L[ionello]. Rassegna dei casi fitopatologici osservati nel 1936. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser., n. 1, pp. 1-78, figg. 1-4.

[Enumeration of phytopathological cases observed in different regions of Italy, as well as Rhodes Island (a virus disease of the rose) and in Italian Somaliland (rotting of the banana caused by *Cylindrocapon* sp. and *Fusarium cubense* ?). A maize bacteriosis attributed to *Aplanobacter stewarti* was observed for the first time in Italy.

Besides that of the rose, other virus diseases of celery, stocks, and tomato plant, are reported as being new to Italy.

The appearance of 'mal secco' of citrus (*Deuterophoma tracheiphila*) has been reported in Turkey].

Phillips, E. P. The bur-weed and cockleburs in South Africa. *Farming in South Africa*, Pretoria, 1937, Vol. XII, No. 131, pp. 58-61, 72, 1 map, pls. 1-3. [*Xanthium* spp.].

Pohjakallio, Onni. Ueber den Einfluss der Temperatur auf die Keimfähigkeit des bei der Formalinbeize geschädigten und von Schimmelpilzen angesteckten Hafers. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 2, S. 178-183. Schriftenverzeichnis, S. 183.

Pussard, R. Un laboratoire mobile pour la désinfection sous vide partiel des produits végétaux. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1937, tome XXIII, nº 21, p. 648-652.

[The apparatus in question is mounted on a motor truck].

Racovitza, A. Nouvelle espèce de Pleosphaeria vivant sur hépatique. *Revue de Mycologie*, Paris, 1937, tome II (n. s), fasc. 3 et 4, p. 125-129, fig. 1-4.

[A Latin diagnosis is given of *Pleosphaeria lophoziae* n sp. living on *Lophozia attenuata* (= *L. gracilis*)]

Ramakrishna Ayyar, T. V., and Anantanarayanan, K. P. The stem-borer pest of rice (*Schoenobius incertellus* W.) in S. India. *Agriculture and Live-stock in India*, Delhi, 1937, Vol. VII, Pt. II, pp. 171-179. References, p. 179.

Ramakrishnan, T. S. Some observations on Sphacelia spp. occurring in Coimbatore. *The Madras Agricultural Journal*, Coimbatore, S. India, 1937, Vol. XXV, No. 4, pp. 119-121, 6 figs. References, p. 121.

Riehm, E. Das Gesetz zum Schutze der landwirtschaftlichen Kulturpflanzen vom 5. März 1937. *Anzeiger für Schädlingskunde*, Berlin 1937, XIII. Jahrg., Heft 6, S. 69-71.

[See this *Bulletin*, 1937, No. 7, p 149-150].

Rigg, T., Askew, H. O., and Chittenden, E. Brown-heart of swedes and turnips in Nelson district: a boron deficiency ailment. *The New Zealand Journal of Science and Technology*, Wellington, N. Z., 1937, Vol. XVIII, No. 10, pp. 750-755, figs. 1-2. Reference, p. 755.

Riggert, E., und Goffart, H. Zur Frage der Kohlfliegenbekämpfung an der Westküste Schleswig-Holsteins. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 7, S. 304-401, Abb. 1. Schriftenverzeichnis, S. 401.

[*Phorbia brassicae*].

ROARK, R. C. Lonchocarpus species (barbasco, cube, haiari, nekoe, and timbo) used as insecticides. *United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. Division of Insecticide Investigations*, [Washington], 1936, 133 pp. Bibliography, pp. 93-133 [Mimeographed]
[On pages 18-19 are listed the insect pests and plant diseases of *Lonchocarpus* spp.]

RODENHISER, H. A Echinulation of chlamydospores and the pathogenicity of a previously undescribed physiologic race of Sphacelotheca cruenta. *Phytopathology*, Lancaster, Pa , 1937, Vol. 27, No 5, pp. 643-645.

ROOS, Karl Untersuchungen uber die Fritfliege (Oscinella frit L.) und ihr Auftreten in verschiedenen Hohenlagen der Schweiz *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1937, LI Jahrg , Heft 6, S 585-666, Abb 1-49 Literaturverzeichnis, S 665-666.

RUGGIERI, G[aetano] Ricerche sull'affinità d'innesto del limone " Monachello " con altri *Citrus* *Bollettino della R Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser , n 1, pp 79-86, figg 1-4, tav I-II
[This lemon variety has proved to be very resistant to ' mal secco ' (*Deuterophoma tracheiphila*)]

RUGGIERI, G[aetano]. Sopra le micorize del mandorlo *Bollettino della R Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n ser , n 1, pp 165-168, figg. 1-2.

SAMUEL, Geoffrey. Whiteheads or take-all in wheat *The Journal of the Ministry of Agriculture*, London, 1937, Vol XLIV, No 3, pp 231-241, figs 1-3. References, p 241
[*Ophiobolus graminis*]

SCHIMITSCHEK, Erwin Die Bekampfung der Weidenschaumzikade *Aphrophora salicis* Fall *Anzeiger fur Schadlingskunde*, Berlin 1937, XIII Jahrg , Heft 6, S 72-77, 10 Abb Schrifttum, S 77.

SCHIMITSCHEK, Erwin Schlussel zur Bestimmung der wichtigsten forstlich schadlichen Kafer Wien, Verlag von Julius Springer, 1937, VI, 67 S , 112 Abb , 2 Taf

SCHULTZ, E S , CLARK, C F , STEVENSON, F J , and RALEIGH, W P Resistance of the potato to latent mosaic *American Potato Journal*, Somerville, N J , and New Brunswick, N J , 1937, Vol XIV, No 4, pp 124-127 Literature cited, p. 127

SERVAZZI, O[ttone] Sulla biologia di *Pestalotia macrotricha* Kleb *Bollettino del Laboratorio sperimentale e Regio Osservatorio di Fitopatologia*, Torino, 1936, anno 13°, nn 5-6, pp 72-92, tav I-II Bibliografia, p 91

SIBILIA, Cesare. Ricerche sulle ruggini dei cereali, VII Lo svernamento di Puccinia graminis tritici Erikss et Henn e di Puccinia triticina Erikss in Italia. *Bollettino della R Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser , n. 1, pp. 147-164, 1 fig Lavori consultati, pp 162-164

SIRRI, A. Come vincere la cuscuta *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n 27, p. 223

SMITH, Oliver F A leaf spot disease of red and white clovers *Journal of Agricultural Research*, Washington, D C , 1937, Vol 54, No 8, pp 591-599, figs. 1-4
[The taxonomic position of the fungus observed on *Trifolium pratense* and *T repens* has not been determined]

STAPP, C. Der Pflanzenkrebs und sein Erreger Pseudomonas tumefaciens V Mitteilung Der Einfluss von T S - Hormon (Follikel-Hormon) auf Tumorbildung und Gesamtentwicklung der mit Pseudomonas tumefaciens infizierten Wirtspflanzen. *Zentralblatt fur Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt , Jena 1937, 96 Bd , Nr 5/8, S 81-92, Abb 1-2

Stevens, Neil E., and Wood, Jessie I. Recent fluctuations in plant diseases in the United States. *The Botanical Review*, Lancaster, Pa., 1937, Vol. 3, No. 6, pp. 277-306, figs. 1-18. Literature cited, pp. 305-306.

Suliotis, Menelao. Contributi alla patologia dei pioppi IV. Un disseccamento di piantine di pioppo canadese e p. caroliniano. Intorno a *Physalospora populina* Maubl ed a una *Phoma* sp. *Bollettino del Laboratorio sperimentale e Regio Osservatorio di Fitopatologia*, Torino, 1936, anno 13°, nn. 5-6, pp 62-72, 2 figg., 2 tav. Bibliografia, p. 72.

Swan, D. C. Insects and other invertebrates of economic importance in South Australia during the period July 1934, to June 1936 *The Journal of the Department of Agriculture of South Australia*, Adelaide, 1937, Vol. XL, No. 9, pp. 717-731, figs. 1-13.

Taylor, C. F., and Blodgett, F. M. Control of a wilt disease of potato by formaldehyde dust. *American Potato Journal*, Sommerville, N J, and New Brunswick, N. J, 1937, Vol. XIV, No. 5, pp 154-157.
[*Fusarium eumarti* ?]

Taylor, G. G. Application of orchard sprays III Spray nozzles *The New Zealand Journal of Agriculture*, Wellington, 1936, Vol. 53, No. 2, pp 68-76, figs. 1-17; 1937, Vol. 54, No 2, pp 71-74, figs. 18-22, No. 5, pp 267-274, figs. 23-28. Literature cited, p. 76.

Taylor, G. G., and Chamberlain, E E Spotted-wilt on tobacco *The New Zealand Journal of Agriculture*, Wellington, 1937, Vol. 54, No 5, pp. 278-283, figs. 1-4. Literature cited, p. 283.
[A virus disease]

Thiem, H Über Erfolge bei der Bekämpfung der Pflaumensägewespen *Forschungsdienst*, Neudamm und Berlin 1937, Bd 3, Heft 7, S 357-368
[*Hoplocampa minuta* and *H flava*]

Thiem, H Von aussergewohnlichen Ohrwurmplagen in Wohnhäusern *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd, Heft 7, S. 380-394, Abb 1-3
[*Forficula auricularia*]

Thiem, H Uber die insektentotende Wirkung von Detal als Stäubmittel *Zentralblatt fur Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt, Jena 1937, Bd 96, Nr 9 12, S 221-230, 1 Abb
[Detal is a dusting product containing dinitrocresol]

Thomas, H. Earl. Rosette or little leaf of fruit trees *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No 6, pp 727-729 Literature cited, pp. 728-729.

Tomkins, R. G, and Dreyer, D J Surface damage in citrus from Sunday's River. *Farming in South Africa*, Pretoria, 1937, Vol XII, No. 131, pp. 75-76, figs 1-5.

Tonnoir, A L. The biological control of the greenhouse white fly in Australia. *Journal of the Council for Scientific and Industrial Research* Melbourne, 1937, Vol. 10, No. 2, pp. 89-95, pls 1-3. References, p 95.
[*Trialeurodes vaporariorum* is parasitized by *Encarsia formosa*]

Trelease, Sam F, [and] Trelease, Helen M Immunity of certain insects to selenium poisoning. *Science*, Lancaster, Pa, 1937, New Series, Vol. 85, No. 2216, p. 590.
[*Acanthoscelides fraterculus, Bruchoplagus mexicanus* or a closely related species, and *Amblymerus bruchophagi* in the seeds of *Astragalus bisulcatus*].

Trouvelot, Bernard. Nouvelles connaissances acquises sur le doryphore. *Revue des Agriculteurs de France*, Paris, 1937, 69ᵉ année, nº 5, p. 188-191, 2 fig.
[*Leptinotarsa decemlineata*].

TSAI, P. H., & CHUN, N. M. Some notes on the natural enemy, sexuality, and other characteristics of the paddy skipper (*Parnara guttata* Bremer) observed during the autumn of 1936, Nanking. *Entomology & Phytopathology,* Hangchow, Chekiang, China, 1937, Vol. V, No. 14, pp. 262-273, 1 fig., 1 pl. [Literature cited], p. 272.
[In Chinese, with title and summary also in English].

TUCKER, R. W. E. A preliminary investigation into cane varieties and infestation by Diatraea saccharalis. *Department of Science and Agriculture, Barbados. Agricultural Journal,* Barbados, 1936, Vol. 5, No. 4, pp. 121-142. References, p. 142.

VASUDEVA, R. Sahai. Studies on the root-rot disease of cotton in the Punjab. III. The effect of some physical and chemical factors on sclerotia formation. *The Indian Journal of Agricultural Science,* Delhi, 1937, Vol. VII, Pt. II, pp. 259-270, figs. 1-3.
[*Rhizoctonia bataticola* and *Rhiz. solani*].

VAYSSIÈRE, Paul. L'organisation internationale antiacridienne. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France,* Paris, 1937, tome XXII, n° 20, p. 622-626.

VAYSSIÈRE, P[aul], et LEPESME, P. Les Bostrychides des produits alimentaires en magasin. *L'Agronomie Coloniale,* Paris, 1937, 26ᵉ année, n° 233, p. 129-141, fig. 1-4. Bibliographie, p. 141.
[*Rhizopertha dominica, Dinoderus minutus* and related species]

VELASCO LLANOS, Vicente. El peor enemigo de las huertas. *Boletín Agrícola,* Medellín, Colombia, 1937, n° 223, págs 820 a 824, 2 figs. Bibliografía, pág 824.
[*Scapteriscus vicinus*].

VELASCO LLANOS, Vicente. El manchador del algodón *Boletín Agrícola,* Medellín, Colombia, 1937, nos. 224 y 225, págs. 887 a 890, 1 fig. Bibliografía, pág. 890.
[*Dysdercus peruvianus*].

VERRALL, A. F., and MAY, Curtis. A new species of Dothiorella causing die-back of elm. *Mycologia,* Lancaster, Pa, 1937, Vol. XXIX, No. 3, pp. 321-324, figs. 1-6 Literature cited, p 324
[*Dothiorella ulmi* n. sp Description in English and diagnosis in Latin].

VIENNOT-BOURGIN, G. Deux Entyloma de l'Ile de Madère. *Revue de Mycologie,* Paris, 1937, tome II (n. s.), fasc. 3 et 4, p. 118-124, fig. 1-3, pl VL.
[*Entyloma brizae* on *Briza maxima, E. Polypogonis* n. sp. on *Polypogon maritimum.* The Latin diagnosis of the new species is given].

VOLK, A. Untersuchungen über Typhula graminum Karst. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz,* Stuttgart 1937, 47. Bd., Heft 6, S. 338-365, Abb. 1-14. Literatur, S 365.

VOLKONSKY, M. Sur un procédé nouveau de protection des cultures contre les acridiens. *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées,* Paris, 1937, tome CXXV, n° 18, p. 417-418.
[Treats on the protective influence exercised by the leaf extracts of *Melia azedarach*].

WADA, Eitarô, and FUKANO, Hiroshi. On the difference and discrimination of wheat mosaics in Japan. *Journal of the Imperial Agricultural Experiment Station,* Nisigahara, Tôkyô, Japan, 1937, Vol. III, No. 1, pp. 93-128, pls. VIII-XV. Literature cited, pp. 121-122.
[In Japanese, with title and summary also in English].

WAHL, Bruno. Der Coloradokäfer oder Kartoffelkäfer (Doryphora = Leptinotarsa decemlineata Say). Herausgegeben von der Bundesanstalt für Pflanzenschutz in Wien. (Beilage zu „ Neuheiten auf dem Gebiete des Pflanzenschutzes ", 1937). [Wien] 1937, 32 S., 17 Abb.

WAHL, Bruno. Der Kartoffelkäfer und sein Einzug in Europa. *Wiener Landwirtschaftliche Zeitung*, Wien 1937, 87. Jahrg., Nr. 14, S. 107-108, Abb. 1-3. [*Leptinotarsa decemlineata*].

WALTER, James M. Variation in mass isolates and monoconidium progenies of Ceratostomella ulmi. *Journal of Agricultural Research*, Washington, D C., 1937, Vol. 54, No. 7, pp. 509-523, figs. 1-6. Literature cited, pp 522-523

WANG, Fei-peng. Biology of the citrus leaf miner, *Podagricomela nigricollis* Chen (Col) in Hwangyen. *Entomology & Phytopathology*, Hankhow, Chekiang, China, 1937, Vol. V, No. 2, pp. 20-28. [Literature cited], p. 28. [In Chinese, with title also in English]

WANG, Fei-peng Biology of the citrus pest, *Clania minuscula* Butl (Lep Psychidae) *Entomology & Phytopathology*, Hangkow, Chekiang, China, 1937, Vol. V, No 9, pp 158-162, figs 1-7 [Literature cited], p. 162. [In Chinese, with title also in English].

WARDLAW, C. W. Banana diseases. X. — Further observations on Cercospora leaf spot of bananas *Tropical Agriculture*, Trinidad, B W. I, 1937, Vol XIX, No. 4, pp. 117-118 [*Cercospora musae*]

WATERMAN, Alma M New hosts and distribution of Rehmiellopsis bohemica. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No 6, pp 734-736 [*Abies* spp]

WEDDELL, J A The grasshopper outbreak in Queensland, 1934-35. *Queensland Agricultural Journal*, Brisbane, 1937, Vol XLVII, Pt 3, pp. 246-259, pls 74-79, 1 map, Pt 4, pp 354-364, pls 126-133, Pt 5, pp 451-462, pl 165. [*Chortoicetes terminifera, Gastrimargus musicus, Austracris proxima, Phaulacridium gemini*].

WEHNELT, B Beiträge zur Geschichte der Phytopathologie III. Mathieu Tillet-Tilletia Die Geschichte einer Entdeckung *Nachrichten über Schädlingsbekämpfung*, Leverkusen a Rh 1937, 12 Jahrg, Nr 2, S [I-IV], 45-[148], Abb. 1-16 Literatur-Verzeichnis, S 139-146 [With titles and summaries also in English, French, and Spanish — 'Mathieu Tillet - Tilletia The story of a discovery' — 'Mathieu Tillet - Tilletia L'histoire d'une découverte' — 'Mathieu Tillet - Tilletia. La historia de un descubrimiento ']

WEIMER, J L The possibility of insect transmission of alfalfa dwarf *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No. 6, pp 697-702

WENZL, Hans Missbildungen an Champignons als Folge schlechter Durchluftung *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 2, S 230-233, Abb. 1-3. Schriftenverzeichnis, S 233 [*Agaricus campestris*].

WILLE, Johannes E. El barreno de los brotes de la higuera en el Perú y su control. *Ministerio de Fomento Dirección de Agricultura, Ganadería y Colonización. Instituto de Altos Estudios Agrícolas del Perú. Estación Experimental Agrícola de La Molina. Circular No 37*, Lima-Perú, 1937, 9 págs, 17 figs. [*Tortyra fulgens*].

Wilson, G. Fox. A leaf-hopper (Jassid) on Rhododendron. *Journal of the Royal Horticultural Society*, London, 1937, Vol. LXII; Pt. 5, pp. 210-213, figs. 63-64.
[*Graphocephala coccinea*]

Wilson, Malcolm. The Phomopsis diseases of conifers. *The Scottish Forestry Journal*, Edinburgh, 1937, Vol. 51, Pt 1, pp. 39-45. References, pp. 44-45.
[*Phomopsis abietina, Ph. juniperovora, Ph. pseudotsugae, Ph. lokoyae, Ph. strobi*].

Wilson, Malcolm. The occurrence of *Keithia Tsugae* in Scotland. *The Scottish Forestry Journal*, Edinburgh, 1937, Vol. 56, Pt. 1, pp. 46-47.

Winkelmann, A., Holz, W., und Jaenichen, H Beiträge zur Biologie und Bekämpfung des Apfelschorfes (Fusicladium dendriticum [Wallr] Fckl). *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt., Jena 1937, Bd. 96, Nr. 9/12, S. 177-192, Abb. 1-3. Literaturverzeichnis, S. 190-191.

Winter, Gerhard. Zur Frage der Bedeutung biologischer und edaphischer Faktoren für das Auftreten der Ophiobolose des Weizens. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 7, S 369-380. Schriftenverzeichnis, S 378-380.
[*Ophiobolus graminis*]

Yang, H. J. Biological notes on *Acrida turrita* L (Orth. Locustidae). *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. 5, No. 7, pp. 123-125
[In Chinese, with title also in English]

Zeck, E. H. The cherry aphid (*Myzus cerasi* Fab) Further investigations and experiments *The Agricultural Gazette of New South Wales*, Sydney, 1937, Vol. XLVIII, Pt. 4, pp 216-218, 3 figs.

NOTES

Official Correspondents. — Dr I Reichert, Chief Plant Pathologist to the Jewish Agency Agricultural Research Station, Rehovot, Palestine, has been nominated official correspondent of the International Institute of Agriculture for all questions relating to plant pathology in Palestine

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

ted [illegible]
Saturday, Spanish; Tuesday, Italian; Wednesday, French.

They will be broadcast from Rome 1 (420.8 m.) and Rome 2 RO (25.4 m.).

The hour of broadcasts is in Central European Time, which is one hour ahead of Greenwich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: Fungous Parasites New to the Country †

The ' Dirección de Sanidad Vegetal ' of the Ministry of Agriculture gives the following information on fungous parasites observed for the first time in the Argentine Republic during the year 1936 —

Phytophthora sp on pepper, proceeding from Colonia Alvear y San Rafael, Mendoza Province

Sclerotium rolfsii Sacc on apples, proceeding from the Islas del Delta del Paraná.

Verticillium sp on the plum, proceeding from Máximo Paz, Buenos Aires Province

Rhizoctonia sp on flax, proceeding from José C Paz, Buenos Aires, and Villaguay, Entre Rios

Rhizoctonia solani Kuhn on cotton, proceeding from Resistencia, Chaco

Sphaeropsis malorum Peck on pine.

Botrytis sp on persimmon fruits

Ustilago cortaderiae n. sp on *Cortaderia argentea*

Uromyces hedysari-paniculati (Schw) Furl on *Desmodium cuneatum*

Graphium necatrix (Hart) Trev on apple, proceeding from José C Paz, Buenos Aires Province.

Helminthosporium allii Campanile on garlic, proceeding from Colonia Caroya, Córdoba Province.

Gloeosporium intermedium Sacc var. *poinsettiae* on ' estrella federal ', proceeding from the Federal Capital

Various virus diseases showing symptoms which in other parts of the world are described as corresponding to the pox of the plum, little peach of the peach, buckskin and mosaic of the cherry.

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* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Agronomical ' Ingenieur ', Director of ' Sanidad Vegetal ', Ministry of Agriculture, Buenos Aires, Argentine Republic.

Egypt: The Occurrence of the Desert Locust in the Country *

Further scouting of various desert regions revealed during July, 1937 the presence of *Schistocerca gregaria*, Forsk., in different localities north of the Kattara depression (see this *Bulletin*, 1937, No. 8, p. 175).

The infested area covered over ten thousand acres where both types of the desert locust were found in different concentrations.

A small outbreak of this species was also reported from Wadi Mit-Matny near Hassana in Sinai.

Control work in both places as well as in the coastal region of the North Western Desert referred to in last month's report, continued during July; the campaign ending at the close of the month.

Although the infested areas have been practically cleared, observations will be continued.

Information at hand show that some *Schistocerca* had also appeared during May and June, 1937 in Tripoli, i. e. on the other side of the Egyptian frontiers.

This supports the idea that the invading locusts in both cases had in all probability come from the South.

A detailed report on the campaign is in the course of preparation.

Eritrea: Locusts †

No locusts were reported in any part of the Colony during the month of June, 1937.

Mozambique: Locust Movements §

During the month of March, 1937, in the district of Porto Amelia, Niass Province, 39 tons of hoppers were destroyed; in the Zambezia Province, considerable numbers of hopper bands were destroyed by chemical and mechanical means.

Summarizing, during this month, in the North of the Colony, little damage was effected, in the centre, Barué, Mutarara, Massingire, and Zambeze district were seriously attacked

During the month of April, 1937, the red locust (*Nomadacris septemfasciata*) continued to come into Zambezia Province for the oviposition period; in the South of the Colony, and chiefly in the zone of the Maputo, Umbeluzi and Incomati rivers, egg-laying has been reported. The Tete district, especially in the Barué zone, is considerably infested, however, this is counterbalanced by other regions of the central part of the Colony which in former years were seriously attacked, being quite free from locusts this year. A similar report is received from the South of the Colony, where the appearance of hoppers was observed only in the districts of Sabié, Maputo and Inharrime, the remaining 11 districts being unaffected. The 1936-37 season is practically terminated; in the South of the Colony, owing to the inundations, control operations began late, and naturally were of little efficacy; however it has been ascertained that the inundations destroyed many layings and a considerable number of hoppers. No attacks by fungi or parasitic insects have been reported.

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* Communication from the Chief of Locust Bureau, Ministry of Agriculture, Egypt to the International Institute of Agriculture

† Communication from Dr. MARCELLO GUBELLINI, Chief in Charge of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

§ Communication from Mr. JÚLIO GARDÉ ALFARO CARDOSO, Chief of the Section of Entomology, Lourenço Marques, transmitted to the Institute by the 'Repartição Tecnica de Agricultura' of the Colony.

From the experiments concluded by the 'Brigada de Estudio' on methods of control, it was found that the use of poisoned bait made with maize flour, sodium arsenite and molasses, in practice gives excellent results This method should be adopted during the following season, except in those zones covered with grass, where a sodium arsenite spray should be used Experiments continue to indicate that the control methods to be employed, either mechanical or chemical, depend on local conditions. As, for example, was the case this year, the control workers in the regions which were inundated, were obliged to use flame throwers.

Southern Rhodesia: Locust Invasion, 1932-1937 *

Monthly Report No. 55. June, 1937.

A few winged swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) have been reported in the north eastern portion of the Colony during June, 1937, the districts included being Lomagundi, Mazoe, Salisbury and Hartley. The swarms have been described mostly as 'large'.

Specimens examined have been normal swarm phase fliers of the early dry season.

No damage has been reported.

Italian Somaliland: Locusts †

During the months of May and June, 1937, no locusts were reported in the Colony.

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* Communication from the official correspondent of the Institute, Mr RUPERT W JACK, F E S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

† Communication from Dr. FERRANTE PAVERI-FONTANA, Chief in Charge of the Agricultural Bureau of Italian Somaliland, Mogadiscio, transmitted to the Institute by the Government of the Colony.

Switzerland: Outbreak of the Colorado Potato Beetle, *Leptinotarsa decemlineata*, in the Country *

The first adult beetle (a fecundated female) was found on 17 June, 1937 in the Lieu Commune (Joux Valley, at an altitude of about 1000 m). At this period and in this region, many potatoes had just begun to grow. Since which period, a certain number of foci have been found in the aforesaid Valley.

At the end of July, 1937, the beetle was noted in the Canton of Geneva (30 communes), Vaud (55 communes), Neuchâtel (8 communes), Fribourg (2 communes), Bernese Jura (2 communes), approximately a total of 200 foci.

In every case, it is a question of a few adults, larvae or eggs, only covering a few square metres, consequently, extremely small areas, which are immediately treated by the extinctive system, which was established following the International Conferences regarding the Colorado beetle, held at Brussels and Berlin. About the areas thus treated, lead arseniate is applied to extensive protection zones.

Under the auspices of the Federal Department of Public Economy, Department of Agriculture, at Berne, a Commission of three members has been appointed in Switzerland to direct the control operations against the pest This Commission is composed of Dr. Wahlen, Director of the Federal Station of Agricultural Experiments, at Oerlikon, near Zurich, Dr. Faes, Director od the Federal Wine-growing and Arboricultural Experiment Station, at Lausanne, and Mr G. Bolens, Director of the Federal Experiment and Seed Control Station, at Mont-Calme, Lausanne

The management and supervision of the control methods is carried out through the intermediary of the Federal Agricultural Establishments at Lausanne and Oerlikon, near Zurich.

Moreover, in each Canton, a Cantonal Commissioner should control local operations. In certain Cantons, also, each commune has nominated a local representative responsible for the work to be carried out.

Following a detailed study of the penetration of the Colorado potato beetle into Switzerland, it may be definitely affirmed that the insect did not exist in this country at the end of 1936. All the small foci observed in 1937 originate from swarms arriving directly this year from adjacent and contaminated French regions

The State Council of the Vaud Canton, in its meeting held on 6 July, 1937 adopted, *inter alia*, the following measures for the control of the beetle: —

(1) The detailed inspection of all the potato fields of the Canton shall be continually carried out with the collaboration of the students of the primary classes and under the supervision of the instructors.

(2) Destruction of the foci of the Colorado potato beetle by means of carbon disulphide, shall be continued, though not at the expense of the proprietors.

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* Communication from the official correspondent of the Institute, Dr. H. FAES, Director of the Federal Wine-growing and Arboricultural Experiment Station, Lausanne, Switzerland.

(3) Protection zones shall be established by compulsory treatment of all potato fields of these zones by spraying with a mixture of lead and copper arseniates. The necessary material shall be supplied gratis by the Confederation. Supplementary instructions shall be given to interested parties

Potatoes cultivated in gardens or plantations shall not be treated, as it is strictly forbidden to apply directly or indirectly arsenical mixtures to vegetables of which the leaves are consumed. Fatal poisoning may result

If communes or private individuals engage unemployed persons to carry out these operations, 50 per cent. of the salaries paid and expenses entailed, fixed at a normal rate, shall be reimbursed from the unemployment funds, if the unemployed persons possess their employment permit and have been assigned by the Cantonal Registry and Unemployment Office.

The Department of Agriculture, Industry and Commerce determines and modifies the protection zones according to circumstances

(4) In each commune, the authorities shall appoint and at their expense if necessary, a communal official, assuming the responsiblity of the supervision of all control operations regarding the Colorado beetle in the commune

The transport, in the living state, of adults, larvae, pupae and eggs, of the Colorado potato beetle, is forbidden. These are easily destroyed by paraffin or a few drops of petrol.

By Decree of 5 August, 1937, the State Council of the Vaud Canton has declared compulsory the treatment of potato crops against the second generation of the beetle throughout all the protection zones The material required for this compulsory control will be supplied free of charge by the Confederation

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Ordinance of the 'Hauptvereinigung der deutschen Getreidewirtschaft', dated 8 June, 1937, cooperatives and all enterprises of a cooperative nature having installations for the cleaning and disinfection of cereal seeds, are obliged to allow non-affiliated persons the use of the said apparatus on payment of a appropiate sum (*Nachrichtenblatt fur den deutschen Pflanzenschutzdienst*, Berlin, Anfang Juli 1937, 17. Jahrg., Nr. 7, S 59)

Germany (Prussia). — By Police Ordinance of 17 April, 1937, the control of the 'Liebstöckelrüssler' (*Otiorrhynchus ligustici*) is made compulsory in the circumscription of Mansfeld, Saxony Province.

The damage caused by this beetle gnawing near the surface of the ground the roots of lucerne and sometimes those of clover, and only occasionally sainfoin roots, may be so considerable as to seriously affect the cultivation of these crops and on occasion completely destroying the young plants during the course of the first year.

As the best method of control, the digging of ditches around the infested fields, of at least 25 cm. in depth and having vertical sides is recommended. At certain points, the ditches should be slightly deepened so as to form at every

20 or 30 metres an opening for the purpose of collecting the beetles, where they may be crushed or burnt.

The ditches should be prepared by 5 April at the latest, that is, before the migration period of the insects

To obtain effective results, it is essential that the control measures should be most carefully applied and to all the fields attacked.

Every field, which after having been under lucerne or clover cultivation for over a year, shall have been ploughed during the period extending from 1 July, 1936 to 30 April, 1937, must be surrounded by ditches in the manner described above

In the event of the persons concerned not carrying out within the desired period, the necessary operations, the police authorities may entrust the said operations to other persons at their expense (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1 Juli 1937, Bd IX, Nr 5, S 106-108)

Austria (Confederation). — By Decree No. 103, published on 10 April, 1937, the countries considered as being free from the wart disease of potato [*Synchytrium endobioticum*], and from which fresh tubers may be imported into the Confederation by rail, are the following — Egypt, French Colonies and Protectorates in North Africa, Italy, Yugoslavia, Malta, Rumania, and Hungary.

Decree No 122 of 1936 (see this *Bulletin*, 1936, No. 12, p. 266) is repealed. (*Bundesgesetzblatt für den Bundesstaat Österreich*, Wien, 10. April 1937, Jahrg. 1937, 27. Stück, S. 381).

Belgium. -- A Ministerial Decree of 11 June, 1937, regulating the sale of potatoes intended for human consumption, establishes, *inter alia*, that the potatoes should be free from wart disease [*Synchytrium endobioticum*], or other diseases retained as harmful and green tubers. Foreign matter of any kind, as well as tubers showing lesions (injuries, cuts, necrosis of any type), and tubers unfit for human consumption, may not exceed 2 % of the total weight of each lot placed on sale (*Moniteur Belge*, Bruxelles, 1er juillet 1937, 107e année, n° 182, p 4137-4138).

⁂ By Royal Decree of 15 June, 1937, and under reserve of the dispositions of the Law of 3 January, 1933 on the carrying of fire-arms, proprietors, farmers and all land owners, must destroy, by every possible means, the hamsters [*Cricetus frumentarius*] found on the lands occupied by them

In the event of those concerned being unable to employ effective means of destruction or where methods are found to be insufficient, the burgomaster may officially attend to the destruction of the hamster in the territory of the commune.

This same authority is the right of the Governor either for the whole province or for that part which he may indicate. (*Ibid.*, 5-6 juillet 1937, nos 186-187, p. 4252).

Belgian Congo. — By Decree of the Provincial Commissioner, Chief of the Province of Costermansville, No 56/Agri , of 14 November, 1936, the directors of societies, managers of coffee estates, and the colonists of the Rutshuru territory are obliged to carry out one of more treatments with pyrethrum powder on all the coffee plants of their plantations on the day and under the conditions established by the entomologist of agronomist in charge of the control of *Lygus* sp., cause of the abortion of coffee flowers.

It will also be necessary to take every means to prevent the spread of the insect, for example: pruning or the coffee plants, shade trees, of cover plants, and maintaining the ground free from weeds.

In case of a refusal on the part of the interested parties, urgently required control measures shall be executed by the authorities at the expense of the persons in question. (*Bulletin Administratif du Congo Belge*, Léopoldville-Kalina, 25 mars 1937, 26^{me} année, n° 6, p. 143-144).

⁂ By Decree of the Provincial Commissioner, Chief of Leopoldville Province, No. 85/Agr., dated 10 March, 1937, the region in the said Province comprised within the limits of the Lower Congo district is declared affected by the banana weevil (*Cosmopolites sordidus*).

The import or transit in Leopoldville Province of cuttings, shoots, bulbs, stems, or parts of stems of banana plants, originating in the above-mentioned region, as well in the neighbouring Colonies of this region (French Equatorial Africa, enclave of Cabinda, Angola), may not be carried out except on previous authorization by the Chief of the Province.

The authorization for import or transit from the neighbouring Colonies is subject to the presentation of an official health certificate of origin, in two copies, declaring that the shoots, suckers, or other parts of the banana plant are free from this weevil in all its biological forms (adult, nymph, larva, eggs) and in general from any species of entomological or cryptogamic infection.

The health certificate in the case of the Lower-Congo district is issued by an officer of the Service of Agriculture and Forests, or by an expert of the ' Inéac ' [National Institute for Agricultural Research in the Belgian Congo], at the expense of the importer or transit goods agent. (*Ibid.*, 25 avril 1937, n° 8, p. 189-191)

France. — A Decree of 11 May, 1937, provides, *inter alia*, for the following measures:—

Every seller of insecticidal, anticryptogamic or fungicidal products, and in general of all products (raw materials or compounds) adopted in the control of crop pests and diseases, but other than copper products, is obliged to specify in his prospectus, advertisements, price-lists, and commercial documents, the denomination of the products placed on sale, with the indication of their natural or industrial origin, their content in active elements and the nature or the state of the combination of these latter:—

(*a*) The origin should be indicated, if in the case of an industrial product, by the name of the factory or firm which has manufactured or caused to be prepared this product, and if it is a natural product, either pure or simply selected and powdered, by the region or locality from where it was obtained;

(*b*) The content in active elements should be indicated by the weight of these active components contained in 100 kgs. or in 100 litres of the preparation.

According to the state under which it is delivered, the active principle is designated by the names of the metalloids or metals in the case of a simple or compound preparation, and by the name of the alcaloid, if it is a organic preparation.

If the organic product is a compound preparation and designated by a patented name, this is the name which shall be specified.

On the other hand, the Decree indicates the manner in which the nature or state, compound or otherwise, of the active principles should be named. The indication of the quality is compulsory for one category of products.

In conclusion, it is specified that any person engaged in the commerce of the products included in the Decree, is obliged to forward to the Ministry of Agriculture, before publication two examples of all catalogues and prospectuses regarding the sale of the products. He shall also be requined to supply any necessary information to agents qualified to establish the exactness of his allegations. (*Journal officiel de la République française*, Paris, 15 mai 1937, LXIX^{ème} année, n° 112, p. 5299-5301).

Guatemala. — The 'Memoria' of the Ministry of Agriculture for the year 1936, presented to the Legislative Assembly in 1937, notify, *inter alia*, that in taking the necessary measures as regards plant protection through the 'Dirección General de Agricultura' imported the quantity of a hundred gallons of carbon bisulphide, colloidal sulphur, copper carbonate, nicotine sulphate and copper sulphate, which was distributed to the farmers at cost price, a similar procedure was carried in the case of calcium and lead arseniates together with the relative instructions.

In respect of the leaf spot (*Stilbum flavidum*), the disease which has caused the greatest damage to coffee plants in Guatemala, the aforesaid Ministry, with the cooperation of the departmental 'Jefaturas Políticas', gave wide publicity to the best methods of control, excellent results ensuing.

The technical staff of the 'Dirección General de Agricultura' assisted by the Departmental Inspectors, during the year 1936, among other activities, gave advice on plant diseases, and instruction in methods of control, and carried out the inspection of imported and exported plants and seeds, etc. (*Diario de Centro América*, Guatemala, 1º de mayo de 1937, tomo XIX, núm. 52, pág. 479).

Indo-China. — The Government, not yet having come to a decision in the postponement granted in respect of the deliberation of 24 October, 1936, of the Permanent Commission of the Government Council of the Government of Indo-China relative to the customs duties to be applied to insecticides, parasiticides, herbicides and fungicides compounds, other than those with a copper or pyrethrum basis (No. 0381 *quinquies*), this deliberation, considered as approved in virtue of Article 5 of the Law of 13 April, 1928 on the colonial customs regime, has been promulgated in Indo-China by local Decree of 26 April, 1937. (*Journal officiel de la République française*, Paris, 29 juin 1937, LXIX^{e} année, n° 149, p. 7369).

Italy. — By Ministerial Decree of 25 May, 1937, the removal of the twigs of citrus trees attacked by ' mal secco ' [*Deuterophoma tracheiphila*] and their destruction by fire have been made compulsory in the citrus growing zones of the province of Reggio Calabria.

The incumbent Syndicate for citrus cultivation in the above-mentioned province is charged with the organization and direction of the control measures to be carried out through the operation and at the expense of the holders of affected plantations; this Syndicate will also execute the said operations at the expense of those persons not carrying out these measures or delaying the said operations. (*Bollettino ufficiale del Ministero dell'Agricultura e delle Foreste*, Roma, 1º luglio 1937, anno IX, n. 13, pp. 1220-1221).

⁂ By Ministerial Decree of 25 May, 1937, the control of the olive fly [*Dacus oleae*], by means of arsenical sprays during the year 1937, has been made compulsory in the territory of the commune of Pisciotta, Salerno Province. (*Ibid.*, pp. 1221-1222).

⁂ By Ministerial Decree of 10 June, 1937, the incumbent Syndicates for fruit production in the provinces of Bologna, Ferrara, Verona, Padua, Treviso, Venice, and Ravenna are charged with the organization and management of control operations against the oriental fruit moth (*Cydia* [*Laspeyresia*] *molesta*) to be carried out at the expense of the proprietors of peach orchards situated in the communes of the above-mentioned provinces. The said Syndicates will also execute all control operations at the expense of those persons not carrying out these measures or delaying the said operations. (*Ibid.*, pp. 1222-1223).

⁂ By Ministerial Decree of 12 June, 1937, the control of the olive fly [*Daus oleae*] during the year 1937 by means of arsenical sprays, has been rendered compulsory in the territory of the commune of Alghero, Sassari Province.

The obligatory Syndicate for Olive-growing of the above-mentioned province is charged with the organization and supervision of the control operations to be carried out at the expense of the holders of olive groves established in the territory of the commune; this Syndicate is also charged with the execution of the said operations at the expense of those persons infringing these regulations or delaying the execution thereof. (*Ibid.*, 16 luglio 1937, n 14, pp 1268-1269).

⁂ By Ministerial Decree of 20 June, 1937, the territory of the commune of Controne, Province of Salerno, has been declared infested by grape phylloxera. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 12 luglio 1937, anno 78º, n. 159, p. 2580).

⁂ By Ministerial Decree of 24 June, 1937, the proprietors and holders of lands under maize cultivation in the provinces of Varese, Verona, Vicenza, Udine and Trieste, should so arrange that before 30 April of every year, all maize stems should be utilized as stable litter and subsequently transported to the manure ditch, or else employed as fuel or as cattle feed, or in any other manner which would adequately ensure the destruction of caterpillars of the European corn borer [*Pyrausta nubilalis*]. This regulation applies to both the stems already gathered in heaps and to those not yet collected.

The collection of the stems should be effected by uprooting, or by cutting them level with the ground or under the soil, in such a way that after removing them, no stubble shall remain. Only in exceptional cases and on the advice of the competent Royal Phytopathological Observatory, may the stems be ploughed deeply into the soil.

Maize stems which, after 30 April of each year, shall not have been consumed or employed in any of the above-indicated ways, should be immediately burnt, if they are already collected in heaps, or cut level with the ground or under the soil to be subsequently burnt at the expense of the infractors of this Decree, who shall be punished in conformance with the dispositions in force.

Maize stems may not be exported from above-mentioned provinces. (*Bollettino ufficiale del Ministero dell'Agricoltura e delle Foreste*, 1° agosto 1937, n. 15, p. 1312-1313).

⁂ By Ministerial Decree of 25 June. 1937, an obligatory Syndicate for the improvement and development of horticultural, flower and fruit plants has been established in the province of Pistoia. (*Ibid.*, 16 luglio 1937, n. 14, pp. 1279-1280)

⁂ By Ministerial Decree of 26 June, 1937, the Provincial Syndicate for fruit-growing in Mantova is charged with the organization and supervision of the control operations against the oriental fruit moth (*Cydia* [*Laspeyresia*] *molesta*) to be carried out at the expense of the holders of peach orchards established in the the communes of the province of Mantova.

The aforesaid Syndicate is also charged to carry out control operations at the expense of persons contravening these regulations or delaying the execution thereof. (*Ibid*, n. 15, p. 1313-1314).

⁂ The National Federation of Olive-growing Syndicates has opened a competition on the basis of qualifications and tests for the attribution of three bursaries for the specialized study of the animal and plant parasites affecting the olive-tree, at the Royal Station of Agricultural Entomology, Florence, the Royal Laboratory of Agricultural Entomology Portici, and the Royal Station of Plant Pathology, Rome

The total annual value of each scholarship amounts to ten thousand lires

Libia. — By the Decree of the Governor General of Libia, No. 8352 dated 22 May, 1937, article 7 of the Decree No. 3669 of 12 April, 1930, is modified as follows: —

The control of consignments of fresh and dried fruit, citrus fruits and vegetables is carried out by the Royal Prefectures of Tripoli and Misurata, by means of competent technical agents of the said Prefectures.

In the case of any complaint, appeal to the General Government is allowed, which latter makes a rapid, definite and final decision, through the intermediary of the Central Office for the Agricultural Services of Libia, which on its part entrusts the regulation of the charge to the official directing the Phytopathological Service or his deputy. (*Agricoltura Libica*, Bollettino mensile del R. Ufficio Centrale per i Servizi Agrari della Libia, Tripoli, agosto 1937, anno VI, n. 8, p. 345).

Switzerland. — By Decree of the Federal Council of 26 May, 1937 the first article, 3rd paragraph of the Decree of the Federal Council of 5 October, 1925-19 May, 1926 relative to the control of potato wart disease [*Synchytrium endobioticum*] is abrogated and replaced by the following disposition:—

'The certificate of origin is valid for a maximum of 30 days calculated from the date of issue'. (*Recueil des Lois fédérales*, Berne, 2 juin 1937, tome 53, n° 21, p. 570).

Uruguay. — By Decree of 31 May, 1937, in each Department of the coast and the interior of the Republic, a Departmental Commission is established for the control of the 'abrojo grande' (*Xanthium macrocarpum* [= *X canadense*]) declared as a pest plant by Decree of 9 October, 1915.

The said Commission is entrusted with all matters regarding the eradication of this weed, and shall be required to ensure that all proprietors of lands and holders of infested areas comply as soon as possible with the measures indicated for the destruction of this weed

The weed should be destroyed before fruiting in order to prevent propagation; the last day of February has been established as the date on which all control measures shall have been executed.

For the present campaign, a sum of 8,000 pesos has been voted to meet the expenses incurred in vulgarization work, pamphlets, etc for assuring the success of control operations (*La Propaganda Rural*, Montevideo, junio de 1937, año XXV, núm 809, págs. 5 y 6)

RECENT BIBLIOGRAPHY

ARANA, Oscar. Informe sobre la enfermedad del banano conocida con el nombre de Sigatoka. *Revista Agricola*, Guatemala, 1937, vol XIV, núm 7, págs 355 a 359, 10 figs
[*Cercospora musae*].

BAKER, R E D Citrus scab on Marsh grapefruit *Tropical Agriculture*, Trinidad, B W. I, 1937, Vol. XIV, No 3, p 69.
[*Sphaceloma fawcetti*].

BALACHOWSKY, Alfred. La rupture expérimentale de la diapause chez le carpocapse ou « ver des pommes » (*Laspeyresia pomonella* L) *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1937, tome 204, n° 4, p. 294-295.

BĂLAN, Sp. Tâstarul sau popândăul (Spermophylus citillus) *Agricultura Nouă*, Cluj 1937, an. IV, nr. 1, pag. 15-17.

BALD, J. G. The use of numbers of infections for comparing the concentration of plant virus suspensions I. Dilution experiments with purified suspensions. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp 33-55, figs. 1-4. References, pp. 54-55.

BALD, J. G. The use of numbers of infections for comparing the concentration of plant virus suspensions. II. Distortion of the dilution series. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 56-76, figs. 1-2. References, p. 76.

BALD, J. G The use of numbers of infections for comparing the concentration of plant virus suspensions III. The effect of carbon on the production of lesions by viruses of the tobacco mosaic group. *The Annals of Applied Biology*, London, 1937, Vol XXIV, No. 1, pp 77-86, fig. 1. References, p. 86.

BAVENDAMM, W. Vierjahresplan und Holzschutz. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 1, S. 1-18

BAVENDAMM, W. Aus der Praxis der mykologischen Holzschutzmittelprüfung. 2 Mitteilung Arsenhaltige Mittel *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 1, S. 18-42 Schriftenverzeichnis, S. 41-42.

BEAUCARNOT, R. Rendements et résistance à la dégénérescence de quelques variétés de pommes de terre *L'Agriculture pratique*, Paris, 1937, 101ᵉ année, nº 13, p. 429-430

BEAUMONT, A , and GREGORY, P. H. A new leaf – spot disease of Gerbera *The Gardeners' Chronicle*, London, 1937, Third Series, Vol CII, No 2637, p 28, fig 14. [*Ascochyta gerberae* on *Gerbera jamesoni*].

BERAN, Ferdinand Zur Kenntnis der Obstbaumkarbolineumemulsionen II Teilchengrösse und insektizide Wirkung. *Anzeiger für Schädlingskunde*, Berlin 1937, XIII Jahrg , Heft 1, S 1-3, Abb 1-3 Schrifttum, S. 3

BERKNER, F Thielavia basicola, eine Gefahr für den Leguminosen-Zwischenfruchtbau ? *Pflanzenbau*, Leipzig 1937, 13 Jahrg , Heft 9, S 321-334, Abb 1-15

BERTHELOT, Albert, et AMOUREUX, Germaine Remarques sur l'utilisation des plantules aseptiques pour l'étude de la formation des tumeurs *Comptes rendus hebdomadaires des séances de l'Academie des Sciences*, Paris, 1937, tome 204, nº 18, p 1360-1362.
[*Bacterium tumefaciens*]

BOCKMANN, Hans Unsere Kenntnisse von den Fusskrankheiten des Getreides *Die kranke Pflanze*, Dresden 1937, 14 Jahrg , Heft 6, S 103-106, Abb 3-4 [*Ophiobolus graminis*, *Cercosporella herpotrichoides*]

BORZINI, G[iovanni] Osservazioni sul parassitismo della « Sclerotinia libertiana » Fuck associata ad altri funghi *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di Scienze fisiche, matematiche e naturali, Roma, 1937, vol. XXV, fasc. 8, pp 401-404

BOUTARIC, A La mouillabilité des bouillies *Revue de Viticulture*, Paris, 1937, 43ᵉ année, tome LXXXVI, nº 2233, p 263-265

BRAIN, Chas K. Star burweed, *Acanthospermum australe*, O Kuntze *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol XXXIV, No 7, pp. 524-525, figs 1-2

BUCKHURST, A S The asparagus fly, *Platyparea poeciloptera* Schr (Dipt , Trypetidae), in England *The Entomologist's Monthly Magazine*, London, 1937, Third Series, Vol XXIII, No 272, pp. 187-190, figs 1-2. References, p 190.

BUDDIN, Walter The grey bulb rot of tulips and its control *The Journal of the Ministry of Agriculture*, London, 1937, Vol XLIV, No 1, pp. 54-59, figs 1-3. [*Sclerotium tuliparum*]

CAMPESE, Oreste Colture tropicali e lavorazione dei loro prodotti. Milano, Ulrico Hœpli editore, [1937], vol I. Generalità, XIX-129 pp., 10 figg , 3 tav , prezzo L. 15; vol. II Caffè, cacao, hevea, thè, XXVIII-415 pp , 128 figg., 24 tav., prezzo L 45; vol. III Cotone, ramiè, sisal, rosella, muse tessili, *Urena lobata*, *Luffa cylindrica*, XXIV-339 pp., 93 figg , 53 tav., prezzo L 60.
[The first volume contains, *inter alia*, the following chapters —
XI. Fungicides.
XII. Insecticides.

In the second volume, chapters XXXVIII-XL of the first book, XXV-XXVII of the second book, and XVII-XVIII of the fourth book, deal respectively with diseases and pests of coffee, cacao, and tea.
In the third volume, chapters XXXI-XXXII of the first book, XV of the second book, XV-XVI of the third book, and IX of the fourth book are devoted respectively to cotton diseases and pests, to the animal parasites of ramie, and to the diseases and pests of sisal and roselle].

CHABROLIN, Charles. La germination des graines de l'*Orobanche speciosa*. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1937, tome 205, n° 3, p. 245-246.

CHAMBERLAIN, E. E. Pea-mosaic. Its symptoms, economic significance, and preventive treatment. *The New Zealand Journal of Agriculture*, Wellington, 1937, Vol. 54, No. 3, pp. 129-138, figs 1-9. Literature cited, p. 138.

CHERIAN, M. C., and ANANTANARAYANAN, K. P. Notes on the incidence of the swarming caterpillar of paddy. *The Madras Agricultural Journal*, Coimbatore, S. India, 1937, Vol. XXV, No. 2, pp. 45-49.
[*Spodoptera mauritia*].

CHEVALIER, Aug[uste]. Plantes ichtyotoxiques des genres Tephrosia et Mundulea. Leur dispersion, leur culture et leurs propriétés insecticides. *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17ᵉ année, n° 185, p. 9-27. Bibliographie, p. 27.

CHEVALIER, Aug[uste]. Sur un Coléoptère du genre *Heteronychus* causant des dégâts aux bananiers en Guinée française. *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17ᵉ année, n° 185, p. 65.
[*H. claudius* on *Musa nana*]

CHEVALIER, Aug[uste], et HEIM, Roger. Le noircissement des bananes des marchés français. *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17ᵉ année, n° 185, p. 1-4.
[*Thielaviopsis paradoxa*, *Lasiodiplodia theobromae*, *Gloeosporium musarum*, *Phomopsis* sp., *Fusarium* sp., *Verticillium* sp.]

CHEVALIER, J. Sur les plantes à roténone. *Le Bulletin Agricole*, Paris, 1937, 57ᵉ année, n° 1918, p. 28-29.

CHOWDHURY, S. Wheat rusts. *The Allahabad Farmer*, Allahabad, U. P., India, 1937, Vol. XI, No. 2, pp. 82-99. Literature cited, pp. 97-99.
['Wheat in India suffers from three kinds of rusts — *Puccinia graminis*, *P. glumarum* and *P. triticina*']

COLEMAN, F. B., and TAYLOR, R. A. Spraying oil concentrates. *Queensland Agricultural Journal*, Brisbane, 1937, Vol. XLVII, Pt. 3, pp. 266-269.

COOK, William S. Relation of nutrition of tomato to disposition to infectivity and virulence of Fusarium lycopersici. *The Botanical Gazette*, Chicago, Illinois, U. S. A., 1937, Vol. 98, No. 4, pp. 647-669, figs 1-7. Literature cited, p. 669.

COULSON, John G., and RAYMOND, L. C. Progress report on the investigation of brown heart of swede turnips at Macdonald College. *Scientific Agriculture*, Ottawa, Canada, 1937, Vol. XVII, No. 5, pp. 299-301, figs 1-4. References, p. 301.
[A boron deficiency disease]

DANZEL, A. Notes pratiques sur le Derris insecticide. *Le Bulletin Agricole*, Paris, 1937, 57ᵉ année, n° 1918, p. 23-28. Bibliographie, p. 28.

DAVIES, W. Maldwyn. Aphis migration and distribution in relation to seed potato production. *Scientific Horticulture*, Wye, Kent, 1937, Vol. V, pp. 47-54. References, p. 54.
[*Myzus persicae*, *M. pseudosolani*, *M. circumflexus*, *Macrosiphum gei*, *Aphis rhamni*].

DAVY DE VIRVILLE, Ad. Recherches sur le parasitisme chez les Muscinées. *Revue générale de Botanique*, Paris, 1937, tome XLIX, n° 577, p. 5-[35], fig. 1-15, pl. I-III. Bibliographie, p. 32-34.

DELONG, W. A. Calcium and boron contents of the apple fruit as related to the incidence of blotchy cork. *Plant Physiology*, Lancaster, Pa., 1937, Vol. 12, No. 2, pp. 553-556 Literature cited, p. 556.
[Blotchy cork = bitter-pit].

DESHUSSES, J. et L. Consultation entomologique· 1. Une tipule nuisible aux oeillets. — 2. Un microlépidoptère nuisible aux bettes à côtes. *Revue Horticole Suisse*, Châtelaine-Genève, 1937, X^e année, n° 6, p. 121-124, fig. 1-2.
[*Pachyrhina maculata*, *Lita atriplicella*].

DIXON, Henry H. Are viruses organisms or autocatalysts ? *Nature*, London, 1937, Vol. 139, No. 3508, p. 153.

DOWSON, W. J., and **DILLON-WESTON**, W. A. R. Brown rot of the hawthorn. *The Gardeners' Chronicle*, London, 1937, Third Series, Vol CI, No. 2634, p. 426, figs. 186-187
[*Sclerotinia crataegi*].

DREYER, T. F Wing abnormality in *Locustana pardalina*. *Nature*, London, 1937, Vol. 139, No. 3509, p. 197, fig. 1.

EDWARDS, H. I, and **NEWTON**, Wm. The physiology of *Rhizoctonia solani* Kuhn V. The activity of certain enzymes of *Rhizoctonia solani* Kühn. *Scientific Agriculture*, Ottawa, Canada, 1937, Vol. XVII, No. 9, pp. 544-549. References, p. 549.
[With title and summary also in French -- ' La physiologie de *Rhizoctonia solani* Kühn. V L'action de certaines enzymes du *Rhizoctonia solani* Kuhn ']

EJERCITO, Juan M. The culture of derris. *The Philippine Journal of Agriculture*, Manila, 1937, Vol 8, No. 1, pp. 89-94, pls 1-3
[*Derris* spp.]

FAJARDO, T. G., and **TECSON**, J. P. A report of an insect pest of white amarylli lily in the Trinidad Valley, Mountain Province, Philippine Islands. *The Philippine Journal of Agriculture*, Manila, 1937, Vol. 8, No. 1, pp 61-[73], pls 1-9. Literature cited, p 72.
[*Glottula dominica* on *Crinum zeylanicum*].

FARQUHAR, H. H. Witchweed. New light on the means by which it is spread. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 7, pp. 563-569.
[*Striga*].

FENNAH, R. G. Lepidopterous pests of the sour-sop in Trinidad. (2) *Thecla ortygnus* Cramer. *Tropical Agriculture*, Trinidad, B. W. I., 1937, Vol. XIV, No. 8, pp. 244-245, figs. 1-2. Reference, p. 245.

FISHER, Ronald C. The genus *Scolytus* in Great Britain, with notes on the structure of *S. destructor* Ol. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 110-130, figs. 1-14. References, p. 130.

FOSSATI, L. Abitudini dell'Oritteropo d'Eritrea (*Orycteropus afer aethiopicus*). *Natura*, Milano, 1937, vol. XXVIII, fasc. I, pp. 16-23, figg. 1-2.
[Termites are the principal food of this edentate and its presence in any territory is biologically associated with that of termitariums].

FOSTER, W. R. Cracking of cherries. *Scientific Agriculture*, Ottawa, Canada, 1937, Vol. XVII, No. 9, p. 550.
[The amount of cracking in sweet cherries appears to be reduced by a Bordeaux (2 – 3 – 40) spray applied five to six weeks before picking]

FOSTER, W. R., and JEFFERY, C. E. Resistance of winter wheats to Hessian fly. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No. 4, pp. 135-140. References, p. 140.
[*Mayetiola destructor*].

FOX WILSON, G. Pests of ornamental garden-plants. *Ministry of Agriculture and Fisheries. Bulletin No. 97*, London, 1937, V + 128 pp., 112 figs.

FREAR, D. E. H., [and] WORTHLEY, H. N. The application of sprays to expanding plant surfaces. *Science*, Lancaster, Pa., 1937, New Series, Vol. 85, No. 2217, p. 610.

FRICKHINGER, H. W. Insekten als Grünlandschädlinge. *Die kranke Pflanze*, Dresden 1937, 14. Jahrg., Heft 6, S. 108-110.
[*Hadena monoglypha, Apion apricans, A. virens, Phytophaga floricola, Pediculoides graminum*, etc.].

FURNEAUX, B. S., and KENT, W. G. "The death": a trouble of fruit trees due to root suffocation. *Scientific Horticulture*, Wye, Kent, 1937, Vol. V, pp. 67-77, figs. 1-2, pls. III-IV. References, p. 77.

GABLER, Hellmuth. Picromerus bidens L. als Feind der Lophyruslarven. *Tharandter Forstliches Jahrbuch*, Berlin 1937, 88. Bd., Heft 1, S. 51-58, Abb. 1. Literatur, S. 58.

GÄBLER, Hellmuth. Otiorrhynchus pupillatus Gill. a subdentatus Bach als Forstschädling. *Tharandter Forstliches Jahrbuch*, Berlin 1937, 88. Bd., Heft 4, S 294-296, Abb. 1. Literatur, S. 296.

GÄBLER H[ellmuth]. Rüsselkäfer als Kätzchenschädlinge der Weide und Birke. *Tharandter Forstliches Jahrbuch*, Berlin 1937, 88. Bd., Heft 4, S. 296-299, Abb. 1. Literatur, S. 299.
[*Phyllobius viridicollis, Barypithes pellucidus*].

GARMENDIA, Juan Ortiz. El ataque del "oidio" del durazno. *Boletin de la Sociedad Agricola del Norte*, La Serena (Chile), 1937, año 25, n.° 1, pág. 14
[*Sphaerotheca pannosa*].

GARMENDIA, Juan Ortiz. Una nueva peste del naranjo. *Boletin de la Sociedad Agricola del Norte*, La Serena (Chile), 1937, año 25, n.° 2, págs. 37 y 38
[*Icerya purchasi*].

GOFFART, H. Das Kleeälchen und seine Bekämpfung. *Die kranke Pflanze*, Dresden 1937, 14. Jahrg., Heft 3, S. 41-43, Abb. 1-3.
[*Anguillulina dipsaci*].

GREEN, D. E. Downy mildew of Antirrhinum majus. A disease new to Great Britain. *The Gardeners' Chronicle*, London, 1937, Third Series, Vol. CII, No. 2637, pp. 27-28, fig. 9.
[*Peronospora antirrhini*].

GREEVES, T. N. The control of blight (*Phytophthora infestans*) in seed potatoes by tuber disinfection. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 26-32, pl. IV. References, p. 32.

HAMILTON, C. C. (Edited by). Entoma. A directory of insect pest control listing insecticides, fungicides and seed disinfectants and chemical used in their manufacture, insecticide and fungicide manufacturers, insecticide machinery, entomological supplies and equipment, biological testing laboratories, consulting entomologists, insect pest control companies, etc. 1937. Publisked by the Eastern Branch of the American Association of Economic Entomologists. New Brunswick, N. J., Thatcher-Anderson Co., Printers, 1937, 144 pp.

HANNA, W. F. Physiologic forms of loose smut of wheat. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No. 4, pp. 141-153, fig. 1. References, p. 153.
[*Ustilago tritici*].

HANSEN, H. N., and SMITH, Ralph E. A bacterial gall disease of Douglas fir, Pseudotsuga taxifolia. *Hilgardia*, Berkeley, California, 1937, Vol. 10, No. 14, pp. 569-577, figs. 1-4. Literature cited, p. 577.
[*Bacterium pseudotsugae* n. sp An English technical description of this pathogen is appended].

HANSEN, H. N., THOMAS, Harold E., and THOMAS, H. Earl. The connexion between Dematophora necatrix and Rosellinia necatrix. *Hilgardia*, Berkeley, California, 1937, Vol. 10, No. 14, pp. 561-565, pl. 1. Literature cited, p. 564.

HARRIES, F. H. Some effects of temperature on the development and oviposition of Microbracon hebetor (Say). *The Ohio Journal of Science*, Columbus, 1937, Vol. XXXVII, No. 3, pp. 165-171, figs 1-2. Literature citations, pp. 170-171.
[*M hebetor* is a parasite of the Mediterranean flour moth, *Ephestia kuhniella*]

HARRIS, R. V., and HILDEBRAND, A. A. An investigation of strawberry virus disease in Ontario. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No. 6, pp. 252-280, figs. 1-4, pls I-IV. References, p. 280.

HARTZELL, Albert. Movement of intracellular bodies associated with peach yellows. *Contributions from Boyce Thompson Institute*, Menasha, Wisconsin, 1937, Vol. 8, No 5, pp. 375-388, figs. 1-6. Literature cited, pp. 387-388.
[A virus disease].

HASTINGS, R. J., and NEWTON, Wm. Preliminary studies of the transfer of four strains of *Ditylenchus dipsaci* (Kühn 1858) Filipjev 1936. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No. 4, pp. 168-174. References, pp. 173-174.

HEIL, K. H. Zur Frage der Anwendung der Raupenleime in gemässigten und tropischen Gebisten. *Der Tropenpflanzer*, Berlin 1937, 40. Jahrg, Nr. 4, S. 170-173. Schriftenverzeichnis, S 172-173.

HEIM, Roger, et BOURIQUET, L. Les maladies des *Albizzia* à Madagascar *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17^e année, n^o 190, p. 405-412, fig. 6-8
[A decay of *Albizzia stipulata* in the Farahony Valley associated with the presence of one or two fungi one being *Coprinus radians*; gummosis of *A. stipulata* in the Tamatave region, cause unknown; canker of *A. lebbek* caused by *Nectria* sp]

HERBST, W[alter]. Venturia pirina Aderhold. II. Die Abhängigkeit der Formenverbreitung von meteorologischen Faktoren. *Die Gartenbauwissenschaft* Berlin, 1937, 11. Bd., 1. Heft, S. 35-53, Abb. 1-11. Schrifttum, S. 53.

HERBST, Walter, RUDLOFF, C. F., and SCHMIDT, Martin Vergleichend-morphologische Studien an verschiedenen Venturiaarten. *Die Gartenbauwissenschaft*, Berlin, 1937, 11 Bd., 2. Heft, S. 183-207, Abb. 1-25 Literaturverzeichnis, S. 207.
[*Venturia inaequalis, V. pirina, V. cerasi, V. aucupariae, V. crataegi, V. ditricha*].

HOFMANN, Christoph. Die Unterscheidung der stammrindenbewohnenden Weisstannenläuse *Dreyfusia nüsslini* C. B. (*nordmannianae* Eckst.) und *Dreyfusia piceae* Ratz. auf Grund der Wachsausscheidungen. *Forstwissenschaftliches Centralblatt*, Berlin 1937, 59. Jahrg., Heft 5, S. 163-169, Abb. 1-6.

HOFMANN, Chr[istoph]. Bibionidenlarven als Verzehrer abgestorbenen Laubes. *Forstwissenschaftliches Centralblatt*, Berlin 1937, 59. Jahrg., Heft 7, S. 227-229, 2 Abb.

HOLMES, F. O. Genes affecting response of Nicotiana tabacum hybrids to tobacco-mosaic virus. *Science*, Lancaster, Pa., 1937, New Series, Vol. 85, No. 2195, pp. 104-105.

HYNES, H. J. Studies on "take-all,, of wheat. — I. *The Journal of the Australian Institute of Agricultural Science*, Sydney, 1937, Vol. 3, No. 1, pp. 43-48. References, pp. 47-48.
[*Ophiobolus graminis*].

INSTITUT INTERNATIONAL D'AGRICULTURE. Annuaire international de législation agricole. XXVI^{ème} année, 1936. Rome, 1937, XXXVI, 1030 p. Prix: 75 lires. [As usual, the seventh part of this year-book is devoted to the legislative measures regarding plant diseases and pests (pp. 651-714)].

JACK, R[upert] W. Division of Entomology, Annual report for year 1936 *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 7, pp. 570-592.

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-37. Monthly Report No. 54. May, 1937. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 7, p. 597.
[*Nomadacris septemfasciata*].

KEAY, Margaret A. An undescribed species of *Sclerotinia*. *The Journal of Botany British and Foreign*, London, 1937, Vol. LXXV, No. 893, pp. 130-132.
[*Sclerotinia sericea* n sp parasitic on *Gypsophila elegans*. A Latin diagnosis is appended].

KÖHLER, F. Über den gegenwärtigen Stand der Erforschung des Kartoffelabbaus *Forschungsdienst*, Neudamm und Berlin 1937, Bd. 4, Heft 2, S 81-90. Schrifttum, S. 88-90.

KORDES, H Die Anfälligkeit der einzelnen Tomatensorten Bacterium michiganense gegenüber und Versuche zur Verhutung der Weiterverbreitung dieses Erregers *Die Gartenbauwissenschaft*, Berlin 1937, 11. Bd, 2 Heft, S 231-236, Abb 1-3

KUTTER, H Die Bekampfung der Konservenerbsenschädlinge im st gallischen Rheintale. Untersuchungsbericht 1936. *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1937, LI Jahrg, Heft 1, S 95-120.
[With summary also in French -- *Kakothrips robustus* and *Contarinia pisi* harmful to peas cultivated in the Rhine Valley, St-Gall Canton, and intended for canning].

LAFFOND, Pierre. Observations sur la localisation de la cochenille Eulecanium corni sur les sarments de vigne en Algérie. *Le Progrès Agricole et Viticole*, Montpellier, 1937, 58^e année, n^o 23, p. 532-534.

LEHMANN, H. Das heutige Ausgangsmaterial fur die Zuchtung Phytophthora-widerstandsfähiger Kartoffeln. (Unter Berücksichtigung der bisher aufgetretenen Biotypen von *P. infestans* De Bary) *Der Zuchter*, Berlin 1937, 9. Jahrg., Heft 2, S 29-35. Literatur, S. 34-35.

LINK, George K. K., **WILCOX**, Hazel W., and **LINK**, Adeline Des Responses of bean and tomato to Phytomonas tumefaciens, P. tumefaciens extracts, β-indoleacetic acid, and wounding. *The Botanical Gazette*, Chicago, Illinois, U S.A., 1937, Vol. 98, No. 4, pp. 816-867, figs. 1-22 Literature cited, pp. 866-867.

LOEWEL, E. L. Ob 2, ein neues Spritzmittel gegen Fusicladium. *Die Gartenbauwissenschaft*, Berlin 1937, 11. Bd, 2. Heft, S. 208-220, Abb 1-7. Literaturverzeichnis, S. 220.

LOWIG, E. Der Einfluss des Kieselsäuregehaltes auf den Mehltaubefall der Gramineen. *Pflanzenbau*, Leipzig 1937, 13. Jahrg., Heft 9, S. 362-367.
[*Erysiphe graminis*].

MACGILL, Elsie I. The biology of Thysanoptera with reference to the cotton plant. VIII. The relation between variations in temperature and the life cycle. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 95-109, figs. 1-8. References, p. 109.
[*Thrips tabaci*].

MACINDOE, S. L. The new era in breeding wheats resistant to stem rust. *The Journal of the Australian Institute of Agricultural Science*, Sydney, 1937, Vol. 3, No. 1, pp. 25-31. References, p. 31.
[*Puccinia graminis*].

MADEL, Waldemar. Zur Kenntnis der Lebensweise und praktischen Bedeutung der Gewächshausheuschrecke Tachycines asynamorus Adel. *Die Gartenbauwissenschaft*, Berlin 1937, 11. Bd., 2. Heft, S. 85-128, Abb. 1-35, Kurven 1-2. Literaturverzeichnis, S. 127-128.

MADER, E. O., and MADER, Mary T. The composition of tubers of sprayed and unsprayed potato plants in relation to cooking quality. *American Potato Journal*, Sommerville, N J., 1937, Vol. XIV, No. 2, pp. 56-59 Literature cited, p. 59.

MAIER, Willi. Bormangelerscheinungen an Rebsämlingen in Wasserkulturversuchen. *Die Gartenbauwissenschaft*, Berlin 1937, 11. Bd, 1. Heft, S 1-16, Abb. 1-10. Literatur, S. 16.

MANOLACHE, C., DOBREANU, E., și DIMITRIU, Fl Contribuțiuni la biologia insectei Cassida nebulosa L. in România. *Analele Institutului de Cercetări Agronomice al României*, București 1936, vol. VIII, an. VII, pag. 477-500, fig 1-14, tabl. nr.1-2, 1 pl. Bibliografie, pag. 497-500.
[In Rumanian, with title and summary also in French: 'Contribution à la biologie de Cassida nebulosa L. en Roumanie '].

MARSH, R. W. Some recent American work on the copper fungicides. *Scientific Horticulture*, Wye, Kent, 1937, Vol. V, pp. 60-66. References, pp 65-66.

MARTELLI, Giuseppe M. La protezione degli agrumi dalla *Ceratitis capitata* Wied. con sacchetti di carta a Tripoli. *Agricoltura Libica*, Tripoli, 1937, anno VI, n 8, pp. 299-302.

MASSEE, A. M. The pests of fruits and hops. Plates by R. M. Greenslade. Foreword by I. C. Fryer. London, Crosby Lockwood & Son, Ltd., 1937, 294 pp., 27 pls.
[From 1909, date of the publication of the well-known book of Fred. V. Theobald entitled ' The insect and other allied pests of orchard, bush and hothouse fruits and their prevention and treatment ' this is the first book of its kind for the use of fruit-growers, to be published in Great Britain.
In the present book an attempt has been made to place before fruit-growers and students a simple and brief account of some of the more important insect and allied pests that occur on fruits and hop. Attention has been concentrated on the practical utility and methods of application of insecticides. The note on each of the pests described is followed by more important references.
The volume is divided into the following chapters: I. Apple. - II. Cherry. - III. Currant: Red, White and Black. - IV. Gooseberry. - V. Loganberry, Blackberry, Himalaya Berry and phenomenal Berry. - VI. Nut: Cob, Filbert and Walnut. - VII. Peach, Apricot and Nectarine. - VIII. Pear. -

IX. Plum and Damson. - X. Raspberry. - XI. Strawberry. - XII. Hop. - XIII. Beneficial and Harmless Insects. - XIV. Insecticides. - XV. Spraying Equipment and Methods. This last chapter is written by J. Turnbull].

McKay, Robert. Potassium permanganate as an aid to the production of a-sexual fructifications by *Phytophthora erythroseptica* Pethybr. *Nature*, London, 1937, Vol. 139, No. 3523, p. 802.

McLarty, H. R., Wilcox, J. C., and Woodbridge, C. G. A yellowing of alfalfa due to boron deficiency. *Scientific Agriculture*, Ottawa, Canada, 1937, Vol. XVII, No. 8, pp. 515-517. References, p. 517.
[With title and summary also in French.— ' Un jaunissement de la luzerne dû au manque de bore '].

Miestinger, K. Wühlmäuse und ihre Bekämpfung im Obstbau. *Der deutsche Landwirt*, Prag 1937, 56. Jahrg., Folge 2, S. 18-20, Abb. 1-3.
[*Arvicola scherman scherman, Pitymys subterraneus subterraneus*].

Milsum, J. N., and Georgi, C. D. V. Derris cultivation in Malaya *The Malayan Agricultural Journal*, Kuala Lumpur, 1937, Vol. XXV, No. 6, pp. 239-245. References, p. 245.
[*Derris elliptica, D. malaccensis*].

Mundkur, B. B. Anthracnose of cucurbits in the Punjab. *Current Science*, Bangalore, 1937, Vol. V, No. 12, pp. 647-648, fig. 1.
[*Colletotrichum lagenarium* on *Cucumis melo* var. *utilissimus* and *Lagenaria vulgaris*].

Needham, N. V A bacterial disease of *Aphis rumicis* Linn., apparently caused by *Bacillus lathyri* Manns and Taubenhaus. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 144-147. References, p. 147.

Newton, Margaret, [and] Johnson, Thorvaldur. Production of uredia and telia of *Puccinia graminis* on *Berberis vulgaris*. *Nature*, London, 1937, Vol. 139, No. 3523, pp. 800-801, fig. 1.

Newton, W., and Edwards, H. I. Virus studies. III. Tomato diseases. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No. 4, pp. 162-167. References, p. 167.

Oberstein Über Beischlüsse von Unkrautsamen in Proben von Rotkleesamen lettländischer Herkunft. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 1, S. 89-93, 5 Abb.

O'Leary, Keith, and Guterman, C. E. F. Penicillium rot of lily bulbs and its control by-calcium hypochlorite. *Contributions from Boyce Thompson Institute*, Menasha, Wisconsin, 1937, Vol. 8, No. 5, pp. 361-374, fig. 1. Literature cited, p. 374.
[*Penicillium cyclopium* on *Lilium auratum*].

Osterwalder, A. Eine wirksame Bekämpfung der Quittenkrankheit. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1937, 46 Jahrg., Nr. 14, S. 234-238, Abb. 1-2.
[*Sclerotinia cydoniae*].

Oyler, Enid, and Bewley, W. F. A disease of cultivated heaths caused by *Phytophthora Cinnamomi* Rands. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 1-16, pls. I-II. References, pp. 15-16.
[*Phyt. cinnamomi* on *Erica hiemalis*, *E. nivalis* and *E. wilmoreana*].

Pagliano, [Th.]. Le phylloxéra de la vigne. *La Tunisie Agricole*, Tunis, 1937, 38e année, n. sér., n° 2, p. 25-47, 9 fig.
[*Phylloxera vitifolii* (*vastatrix*)].

Parkin, E. A., and **Busvine**, J. R. The toxicity of hydrogen cyanide to certain wood-boring insects. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 131-143, figs. 1-2. References, p. 143.
[*Lyctus brunneus, Anobium punctatum*].

Parkin, E. A. The kiln-sterilization of timber infested by *Lyctus* powder-post beetles. *Forestry*, London, 1937, Vol. XI, No. 1, pp. 32-39. Literature references, p. 39

Petherbridge, F. R., and **Stapley**, J. H Cutworms as sugar-beet pests, and their control. *The Journal of the Ministry of Agriculture*, London, 1937, Vol. XLIV, No. 1, pp. 43-49, figs 1-5.
[*Euxoa segetum, E exclamationis, E nigricans*].

Petit, A. Remarques sur l'entretien sanitaire des arbres fruitiers. *Bulletin de la Direction des Affaires économiques*, Tunis, 1937, XI,^{e} année, n° 165, p 247-251.

Petrak, F (Referent). Verzeichnis der neuen Arten, Varietäten, Formen, Namen und wichtigsten Synonyme der Pilze 1922-1928 (Schluss). *Just's Botanischer Jahresbericht*, Leipzig 1937, LVI Jahrg (1928), 2. Abtlg, 3 Heft, S 481-697.
[See also this *Bulletin*, 1937, No 6, p. 139]

Petri, L[ionello]. Trasmissione del « virus » dell'arricciamento della vite attraverso i tessuti di una varietà resistente *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di Scienze fisiche, matematiche e naturali, Roma, 1937, vol. XXV, fasc. 9-10, pp. 413-416.

Potgieter, J T The Argentine ant *Farming in South Africa*, Pretoria, 1937, Vol XII, No 133, pp 160, 168
[*Iridomyrmex humilis*]

Prell, Heinrich Vergiftung von Schmetterlingsraupen durch Flugstaubarsen. *Tharandter Forstliches Jahrbuch*, Berlin 1937, 88 Bd, Heft 2, S 126-136, Abb. 1-2.

Putman, Wm L. Biological notes on the Chrysopidae. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. D, No. 2, pp. 29-37, fig. 1. References, p 37.
[This paper present further biological and ecological data on the Chrysopidae (*Chrysopa rufilabris, C plorabunda, C. downesi, C oculata, C nigricornis, Meleoma signoretti* and *M emuncta*) gathered during a study of the predator of the oriental fruit moth, *Grapholitha molesta*]

Rademacher, B, und **Buhl**, C. Die Bekampfung der Kartoffelkrautfäule *Mitteilungen fur die Landwirtschaft*, Berlin 1937, 52. Jahrg., Heft 23, S. 473-474.
[*Phytophthora infestans*]

Rădulescu, Eugen Experienţă asupra combaterei gărgăriţei grâului (Calandra granaria) prin tratamentul cu Areginal. *Agricultura Nouă*, Cluj 1937, an IV, nr 1, pag. 1-4.

Ramakrishna Ayyar, T V, A cow bug (*Anchon pilosum*, Wlk.) injurious to leguminous crops in Malabar. *The Madras Agricultural Journal*, Coimbatore, S. India, 1937, Vol XXV, No 2, pp. 33-35.

Raper, John R. A method of freeing fungi from bacterial contamination. *Science*, Lancaster, Pa, 1937, New Series, Vol. 85, No. 2205, p 342.

Reed, R. H Removal of spray residue from apples. *Agricultural Engineering*, Saint Joseph, Michigan, 1937, Vol. 18, No. 6, pp. 261-264, 267, figs. 1-4.

Robbie, J Permanganate of potash as a fungicide *The Gardeners' Chronicle*, London, 1937, Third Series, Vol. CI, No. 2634, pp. 425-426.

ROSENKRANZ, Erich Der Fasan – ein eifriger Schadlingsbekämpfer *Die kranke Pflanze*, Dresden 1937, 14. Jahrg , Heft 3, S 48-49, 1 Abb.

ROVENTINI, A. La migliore utilizzazione del dachicida sugli olivi riformati *Pagine Agricole*, Livorno, 1937, anno XXI, nn 6 e 7, p 3
[Control of *Dacus oleae*].

SALAMAN, Redcliffe N Acquired immunity against the 'Y' potato virus *Nature*, London, 1937, Vol 139, No. 3526, pp 924-925, figs 1-2.

SANDU VILLE, C Tratarea seminţei de grâu contra Mălurei *Analele Institutului de Cercetări Agronomice al României*, Bucureşti 1936, vol VIII, anul VII, pag. 501-518
[In Rumanian, with title and summary also in French — 'Traitement de la semence de blé contre la carie' — *Tilletia tritici*, *T foetens*]

SATTLER, F Der Apfelblutenstecher Vorlaufige Mitteilung uber die Versuchsjahre 1935 and 1936 *Die kranke Pflanze*, Dresden 1937, 14 Jahrg , Heft 3, S 43-48.
[*Anthonomus pomorum*].

SAUNDERSON, W R , and CAIRNS, H On the control of gooseberry rust *The Annals of Applied Biology*, London, 1937, Vol XXIV, No 1, pp 17-25, fig. 1, pl III References, p 25
[*Aecidium grossulariae* (*Puccinia pringsheimiana*)]

SAVILE, D B O , and RACICOT, H N Bacterial wilt and rot of potatoes *Scientific Agriculture*, Ottawa, Canada, 1937, Vol XVII, No 8, pp. 518-522, figs 1-3 References, pp 521-522
[With title and summary also in French — 'Brûlure et pourriture bactériennes des pommes de terre' The organism isolated shall only be named when comparative researches shall be made with *Phytomonas michiganensis* and *Phyt sepedonica*]

SCHMIDT, H. Eine Blattfleckenkrankheit an Pelargonien (Erreger *Macrosporium pelargonii*) *Die kranke Pflanze*, Dresden 1937, 14 Jahrg , Heft 3, S 50-51, 1 Abb

SCHMIDT, Martin Infektionsversuche mit Sclerotinia cinerea an Suss- und Sauerkirschen (Vorläufige Mitteilung) *Die Gartenbauwissenschaft*, Berlin 1937, 11 Bd , 2 Heft, S 167-182, Abb 1-11 Literaturverzeichnis, S 182

SCHMIDT, Martin Venturia inaequalis (Cooke) Aderhold VII Zur Morphologie und Physiologie der Widerstandsfahigkeit gegen den Erreger des Apfelschorfes *Die Gartenbauwissenschaft*, Berlin 1937, 11 Bd , 2 Heft, S 221-230, Abb 1-18. Literaturverzeichnis, S 230

SCHNEIDERS, Erich Uber die Zellstabe und ihre phytopathologische Bedeutung *Die Gartenbauwissenschaft*, Berlin 1937, 11 Bd , 2 Heft, S 237-250, Abb 1-9 Literaturverzeichnis, S 250

SÉLARIES, P Observations sur le charbon de l'orge *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1937, tome XXIII, nº 23, p 747-751
[*Ustilago nuda*]

SIMMONDS, J. H. Citrus diseases *Queensland Agricultural Journal*, Brisbane, 1937, Vol. XLVII, Pt 2, pp 142-153, pls 41-42
[*Phoma citricarpa*, *Phomopsis citri*, *Sporotrichum citri*, *Penicillium digitatum*, *P. italicum*, *Phytophthora citrophthora*, *Phyt parasitica*, *Diplodia natalensis*, *Corticium salmonicolor*, *Armillaria mellea*, *Capnodium* spp , *Leptothyrium* sp., diseases of unknown cause (brown spot of the Emperor mandarin, psorosis, exanthema, mottle leaf or foliocellosis, etc].

Small, T. The control of potato blight in Jersey. *The Journal of the Ministry of Agriculture*, London, 1937, Vol. XLIII, No. 12, pp. 1162-1168, figs. 1-2. [*Phytophthora infestans*].

Smith, Kenneth M. Studies on a virus found in the roots of certain normal-looking plants. *Parasitology*, London, 1937, Vol. 29, No. 1, pp. 70-85, fig. 1, pls. IV-V. References, p. 84.

Smith, Kenneth M. Further studies on a virus found in the roots of certain normal-looking plants. *Parasitology*, London, 1937, Vol. 29, No. 1, pp. 86-95, pl. VI. References, p. 95.

Smith, M. R. The ants of Puerto Rico. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1937, Vol. XX (1936), No. 4, pp. 819-875, figs. 1-19. Bibliography, pp. 874-875.

Solacolu, Theodor, et **Constantinesco**, Démètre. Tumeurs à caractères néoplasiques formées sur les plantes par l'action de l'acide β-indolylacétique. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1937, tome 204, nº 4, p. 290-292, 1 fig.

[Experiments carried out on *Abutilon avicennae*, *Ricinus communis* and *Helianthus annuus*.]

Stahel, Gerold. The banana leaf speckle in Surinam caused by *Chloridium Musae* nov. spec. and another related banana disease. *Tropical Agriculture*, Trinidad, B. W. I., 1937, Vol. XIV, No. 2, pp. 42-45, figs. 1-17. References, p. 44.

[The English description of *Chloridium musae* n. sp. and *Ramichloridium musae* n. gen. and n. sp. is given.]

Stahel, G[erold]. Banana leaf spot (*Cercospora musae*). *Tropical Agriculture*, Trinidad, B. W. I., 1937, Vol. XIV, No. 3, pp. 59-60.

Stirrett, Geo. M., **Beal**, Geoffrey, and **Timonin**, M. A field experiment on the control of the European corn borer, *Pyrausta nubilalis* Hubn., by *Beauveria Bassiana* Vuill. *Scientific Agriculture*, Ottawa, Canada, 1937, Vol. XVII, No. 9, pp. 587-591. References, p. 591.

Storey, H. H. A new virus of maize transmitted by *Cicadulina* spp. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 1, pp. 87-94, pl. V. References, p. 94.

Squire, F. A. Nocturnal habits of *Platyedra gossypiella* Saunders. *Nature*, London, 1937, Vol. 140, No. 3532, pp. 69-70, figs. 1-2.

Squire, F. A. Notes on the yellow aphis of sugar-cane, *Sipha flava* Forbes. *Tropical Agriculture*, Trinidad, B. W. I., 1937, Vol. XIV, No. 1, pp. 3-4. References, p. 4.

Strickland, A. G. Mottle-leaf of citrus preliminary note on correction in South Australia with zinc sprays. *The Journal of the Department of Agriculture of South Australia*, Adelaide, 1937, Vol. XL, No. 7, pp. 579-585, figs. 1-7.

[The application of zinc sprays to mottle-leaf affecting citrus trees in several districts has led to marked improvement in tree health, and the disappearance of mottle-leaf symptoms.]

Thomas, H. Earl. Apple mosaic. *Hilgardia*, Berkeley, California, 1937, Vol. 10, No. 14, pp. 581-588, figs. 1-3. Literature cited, p. 588.

Thompson, Maude A. Summary of State and territorial plant quarantines affecting interstate shipments. *United States Department of Agriculture. Miscellaneous Publication No. 80*, Washington, D. C., issued July 1930, revised March 1937, 132 pp.

Tischler, W. Schadauftreten von Wanzen an Getreide. *Die kranke Pflanze*, Dresden 1937, 14. Jahrg., Heft 6, S. 106-108, Abb. 1-2.
[*Eurygaster maura, Aelia acuminata, Dolycoris baccarum, Carpocoris fuscispinus, Palomena prasina*].

Tomkins, R. G., and Dreyer, D. J. A note on low temperature breakdown of grapefruit from Somerset West. *Farming in South Africa*, Pretoria, 1937, Vol. XII, No. 133, pp. 157-159, figs. 1-3.

Trinchieri, Giulio Per l'avvenire economico dell'Etiopia. Nemici e malattie del caffè in Africa *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 32, p. 271, 2 figg.
[A general survey of the pests and diseases of coffee observed up to-date in Africa for the purpose of drawing attention to the fact that studies and research work of a phytosanitary nature should be undertaken as soon as possible in Ethiopia]

Turnbull, J. Fruit tree spraying in 1936. *The Journal of the Ministry of Agriculture*, London, 1937, Vol. XLIII, No. 12, pp. 1145-1157

Varrelman, F A. Cuscuta not a complete parasite. *Science*, Lancaster, Pa., 1937, New Series, Vol 85, No. 2195, p. 101.

Vayssière, [Paul]. Aperçu sur l'importance économique des punaises du blé *Le Bulletin Agricole*, Paris, 1937, 57e année, nº 1918, p. 34-36.
[*Eurygaster* and *Aelia* spp.].

Vayssière, P[aul]. Sur un nouvel ennemi des vergers canadiens. *L'Agriculture pratique*, Paris, 1937, 101e année, nº 13, p 431-432.
[*Phenacoccus aceris*].

Vinas, Jean Préparation et emploi des insecticides roténonés. *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17e année, nº 190, p. 419-433. Bibliographie, p 430-433.

Vogel, R Die gegenwärtige Verbreitung der Hausratte (*Mus rattus* L) in Wurttemberg. *Anzeiger fur Schädlingskunde*, Berlin 1937, XIII. Jahrg, Heft 1, S 3-7, Abb 1-2

Volkonsky, M Elevage et croissance larvaire du criquet égyptien (*Anacridium aegyptium* L) *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1937, tome CXXV, nº 21, p 739-742, 1 graphique.

v Gaisberg, Elisabeth. Über die Adelopus-Nadelschutte in wurttembergischen Douglasienbeständen mit Hinweis auf die bisher hier bekanntgewordene Verbreitung von Rhabdocline. *Forstliche Wochenschrift Silva*, Tubingen 1937, 25. Jahrg., Nr 5, S 37-42, Abb 1-2; Nr. 6, S 45-48 Benutztes Schrifttum, S. 48

Wager, Vincent A. Black-rot disease of cabbages *Farming in South Africa*, Pretoria, 1937, Vol XII, No. 133, pp. 170-171, figs. 1-4.
[*Bacterium campestre*]

Wartenberg, Hans Probleme der Forschungen uber den Abbau der Kartoffel. *Der Züchter*, Berlin 1937, 9 Jahrg. Heft 2, S 35-40, Abb. 1-10. Literatur, S. 40.

Weber, Neal A The biology of the fungus-growing ants Part II. Nesting habits of the bachac (*Atta cephalotes* L). *Tropical Agriculture*, Trinidad, B. W. I., Vol. XIV, No 8, pp. 223-226, figs. 1-8.

Welsh, J. N. The synthetic production of oat varieties resistant to race 6 and certain other physiologic races of oat stem rust. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. C, No 2, pp. 58-69, figs 1-5. References, p. 69.
[*Puccinia graminis avenae*].

WHITE, C T Queensland weeds Johnson grass and wild sorghum. *Queensland Agricultural Journal*, Brisbane, 1937, Vol XLVII, Pt 4, pp 365-368, pls. 134-135
[*Sorghum halepense* and *S verticilliflorum*]

WHITEHEAD, T The virus probleme in relation to seed potato production in North Wales *Scientific Horticulture*, Wye, Kent, 1937, Vol V, pp. 39-46.

WILSON, A R The chocolate spot disease of broad and field beans *The Journal of the Ministry of Agriculture*, London, 1937, Vol XLIII, No 11, pp. 1047-1049, figs 1-3
[*Botrytis cinerea*]

WOLCOTT, George N The life history of " Diaprepes abbreviatus " L, at Río Piedras, Puerto Rico *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P R, 1937, Vol XX (1936), No 4, pp 883-914, figs 1-6 Bibliography, pp 913-914

WORMALD, H Leaf-blotch of hawthorn *The Gardeners' Chronicle*, London, 1937, Third Series, Vol CII, No 2638, p 47, fig 21
[*Sclerotinia crataegi*]

WRIGHT, J A Fruit flies Some common species in New South Wales *The Agricultural Gazette of New South Wales*, Sydney, 1937, Vol XLVIII, Pt. 1, pp 26-28,30, figs 1-6
[*Chaetodacus tryoni, Chaet gurneyi, Chaet dorsalis, Chaet strigatus, Ceratitis capitata, Rioxa pornia*]

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INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Eritrea: Locusts †

During the month of July, 1937, no locusts were observed in any part of the Colony.

Greece: *Euxoa crassa* Injurious to the Grape-Vine §

On 26 March, 1937, the Prefect of Messenia and the Agricultural Syndicates of the Gargaliani district in western Peloponnese informed the Ministry of Agriculture that a caterpillar as yet unknown was causing considerable damage to the vineyards of the region. The Agricultural Bank of Greece also notified the Ministry of the appearance of the same parasite at Dialiscari.

The Ministry of Agriculture commissioned the Director of the Patras Phytopathological Station to visit the infested areas in order to study the question and to advise on the control measures to be adopted.

According to the report of this Director, the caterpillar coming out in large numbers during the night, causes considerable damage in the Marathos district. It was not possible to apply lead arsenate, for want of sprayers with agitators. On the other hand, the collecting of the caterpillars during the night gave excellent results.

Some samples of this moth were forwarded to the Benaki Phytopathological Institute, where the species was identified as *Euxoa crassa*, Treits.

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* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the Government of Eritrea to the International Institute of Agriculture.

§ Communication from the official correspondent of the Institute, Professor Dr. C. A. Isaakidès, Director of the Benaki Phytopathological Institute, Kiphissia-Athens, Greece.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) *

During the month of May, 1937, the appearance of larvae, which were destroyed, only occured in the circumscription of Lúrio, Porto Amelia District, Nyassa Province.

The swarms mostly attacked scattered areas in the districts of Porto Amelia and Mozambique, Nyassa Province, Tete, Zambezia Province, and Lourenço Marques, Sul do Save Province, but chiefly in the eastern part of the circumscription of Mutarara, Zambezia Province and the south-west area of the circumscription of Barué, in the Tete District.

Some damage was caused to the native crops in the administrative area of Balama, Montepuez circumscription, in the Porto Amelia District, also in the circumscriptions of Erati and Nicala, Mozambique District and in the circumscription of Barué, Tete District.

During the month of June, 1937, the appearance and movement of various swarms were observed in the provinces of Niassa, Zambezia and Sul do Save, on 30 May, in Zambezia, thirteen swarms of *Nomadacris septemfasciata* were reported in the circumscription of Barué, Tete District

The position regarding locust movements in the month of June in comparison with the month of May, represents the following characteristics —

(1) The situation in the provinces of Nyassa and Zambezia has improved in consequence of the displacement of several swarms towards the territories of Tanganyika and Nyasaland, and also because swarms have ceased to enter the country coming from the two Rhodesias.

(2) In the province of Sul do Save the displacement of swarms towards the north-east of the district of Lourenço Marques to that of Inhambane.

(3) In general, a tendency to the formation of large swarms is observed.

Damage, in general of a serious nature, has been caused to native crops in the circumscriptions of Mucojo (Porto Amélia district), Metarica (Mozambique district), Barué (Tete district) and Homoíne (Inhambane district). In the circumscription of Barué, fruit trees have also been damaged.

Palestine: Observations on the Life History of *Chrysomphalus ficus* †

Recent studies in the life history of *Chrysomphalus ficus* in the northern (Acre) area of Palestine have shown that there are two periods in its life history at which it is most susceptible to attack, namely in the early summer and late summer or early autumn.

At this period all insects are either in the larval or preoviposition stage and consequently they are more easily killed by fumigation.

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* Communication from Mr. ALBERTO COUTINHO SARAIVA, Chief of the Section of Entomology, Lourenço Marques, transmitted by the 'Repartição Técnica de Agricultura' of the Mozambique Colony.

† Communication from the official correspondent of the Institute, Mr. E. BALLARD, Government Entomologist, Department of Agriculture and Fisheries, Jerusalem, Palestine.

It has been suggested, (and experiments are in progress to test the value of this suggestion) that if fumigation is given during these two periods during the course of one year that so large a kill will be obtained that further fumigation can be postponed for three or even four years.

The Netherlands: Outbreak of the Colorado Beetle (*Leptinotarsa decemlineata*) in the Country *

In 1937, foci of the Colorado potato beetle were found in the Province of Limburg. These foci only covered an area of a few square metres. One situated at Castenray, was discovered on 6 July; the other at Baarlo, on 11 August.

In the first case, there were 70 larvae, and in the second, 70 adults.

The foci were immediately treated by the system which was established in consequence of the International Conferences on the Colorado beetle, held at Brussels and Berlin. The potato fields were treated with lead arsenate sprays for a wide radius around these foci.

The control of the Colorado beetle in the Netherlands is regulated by Law of 27 December, 1934.

Southern Rhodesia: Locust Invasion, 1932-1937 †

Monthly Report No. 56. July, 1937.

During the month of July, 1937 the only districts in which swarms of locusts have been reported, are Salisbury, Marandellas, Lomagundi and Mazoe. The reports refer to the Red Locust (*Nomadacris septemfasciata*, Serv). No damage has been reported.

Italian Somaliland: Some Recent Notes §

Among the observations made during the months of June and July, 1937, the following date are of particular interest·—

Frequent attacks and occasionally serious, of nematodes (*Anguillulina*, *Tylenchus*) on the banana, causing rotting of the roots and the consequent fall of the plants.

Empoasca facialis occurred in June to a considerable extent on cotton, the number of plants infested diminished considerably in July, and since then has caused little anxiety.

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* Communication from the State Phytopathological Service, Wageningen, official correspondent of the Institute.

† Communication from the official correspondent of the Institute, Mr. RUPERT W JACK, F E. S. Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

§ Communication from Dr. FERRANTE PÀVERI-FONTANA, Chief of the Agricultural Bureau, Government of Italian Somaliland, Mogadiscio.

Mometa zemiodes caused some considerable damage in June, though only in isolated cases, by boring the stem of cotton plants.

The attacks of *Sesamia cretica* on maize, slight and infrequent in June, became serious in July, although not increasing in extent.

In July, some very serious cases of yellowing of groundnut plants were reported.

Cercospora personata, which attacked the leaves of the groundnut fairly seriously in June, literally invaded the plants in July, thus causing considerable damage.

In June, *Antigastra catalaunalis* attacked the inflorescences of sesame fairly seriously.

Switzerland: The Colorado Beetle (*Leptinotarsa decemlineata*) in German Switzerland *

In consequence of the wide spread of the Colorado beetle ascertained in French Switzerland (see this *Bulletin*, 1937, No. 9, pp. 200-201), it was to be expected that this pest would also soon make its appearance in German Switzerland.

The regions more especially exposed to the danger of invasion were systematically scouted by pupils of primary schools. In this way, during the month of August, 1937 this beetle was found in a commune of the Basel-Land canton. Its presence was also verified in a commune of the Solothurn canton. In both cases, it was a question of one adult only.

Control measures were organized in a uniform manner according to the method followed in French Switzerland. In the cantonal and communal centres, under the direction of the Federal Agricultural Experiment Station, Zürich-Oerlikon, the two foci were destroyed by means of carbon disulphide, and for a considerable area around these foci, potato crops were sprayed with lead arsenate.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

French West Africa (Sudan). — By Decree of the Governor General, dated 7 July, 1937, passed by the Permanent Commission of the Government Council, the Decree No. 2628 of 13 November, 1936, of the Lieutenant Governor of Sudan, rendering compulsory the declaration of the 'rosette' disease of the groundnut, is approved. (*Journal officiel de l'Afrique occidentale française*, Gorée, 17 juillet 1937, 33^e année, n° 1731, p. 778).

Germany. — The third Decree of 20 July, 1937, relative to the prevention of the introduction of the Colorado beetle (*Leptinotarsa decemlineata*) specifies the dispositions regulating the importation of plants and parts of plants proceeding from France, and these dispositions are also applied to consignments from

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* Communication from the official correspondent of the Institute, Dr. E. NEUWEILER, Federal Agricultural Experiment Station, Zürich-Oerlikon, Switzerland.

Belgium and Luxemburg, these two countries being considered infested by the Colorado beetle.

The Decree prohibits the importation and transit of potatoes, tomatoes, egg plants, plants with roots with or without adhering earth, tubers, bulbs, rhizomes and any other subterranean part of plants, as well as parings or other waste products of same, sacks or any other article employed in the packing or storage of these products.

During the period of 1 April to 14 November of each year, the importation and transit of fresh vegetables and other pot-herbs as well as the green parts of vegetables, with the exception of fruits, from France, Belgium and Luxemburg are authorized on the condition that these products have been grown at a distance of at least 50 km. from the outside limit of the area infested by the Colorado beetle and that each consignment is accompanied by a regular certificate conformably to that authorized by the Decree of 23 February, 1932 [see this *Bulletin*, 1932, No. 4, pp. 56-57].

It is understood that the importation and transit of live Colorado beetles in any stage of development are prohibited [see this *Bulletin*, 1932, No. 12, p. 205].

The Minister of Agriculture is authorized to concede derogations to this Decree. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang August 1937, 17. Jahrg., Nr. 8, S. 67).

⁂ By Decree of 29 July, 1937, the Minister of Agriculture, by derogation to the Decree of 20 July, 1937, has authorized the importation from France, Belgium and Luxemburg, of certain plants, with or without adhering earth, of which a list is given.

Consignments must be accompanied by a certificate issued by the Plant Protection Service of the country of origin, stating the botanical name and testifying the sanitary condition of the plants. The consignments will also be inspected on arrival by an officer of the German Plant Protection Service. (*Ibid*).

Germany (Saar). — In order to prevent the possibility of the insecticides employed in the control of the Colorado beetle [*Leptinotarsa decemlineata*] becoming a danger to man, domestic animals and bees, a Police Ordinance, dated 7 August, 1937, establishes, for the district of Homburg, that potato fields, before the first treatment and subsequently until the end of harvesting, must be free from all weeds in flower.

Before proceeding to the treatment of potato fields adjoining meadows or fields under green forage crops, a protection zone 2 metres wide must be established on these latter and the grass must be mowed.

Plants having come into contact with insecticides shall not be utilized as a forage or as stable litter. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1937, Bd. IX, Nr. 6, S. 124-125).

Argentine Republic. — By Decree No. 102.213 of 24 March, 1937, the regulations are established for the application of article 34, par. (*a*) of the Law No. 12.345, which exempts from customs duty, white arsenic, calcium arsenate, sodium arsenate, sulphur, commercial carbolic acids, and nicotine sulphate, which are utilized in the preparation of remedies used in the control of pests and diseases. (*Boletín Oficial de la República Argentina,* Buenos Aires, 7 de julio de 1937, año XLV, núm. 12.894, pág. 8405).

⁂ By Decree No. 102.311 of 31 March, 1937, the price for spare parts for flame-thrower apparatus is established. (*Ibid.*, pág. 8402).

⁂ By Decree No. 102.863 of 6 April, 1937, the transport of non-disinfected cotton seed from the zone declared infected by the pink bollworm (*Platyedra gossypiella*) solely by river route and despatched to the Federal Capital, Rosario and San Lorenzo (Puerto Granaderos), for utilization in the factories established in the respective port zones or localities nominated is authorized up to 30 September, 1937. (*Ibid.*, págs. 8405 y 8406).

⁂ By Decree No. 104.424 of 27 April, 1937, it is established that the custom-house of the province of Mendoza shall control the entry of bananas from Ecuador via Chile.

The 'Dirección de Sanidad Vegetal' will adopt the necessary means to verify the sanitary condition of the fruit to be imported. (*Ibid.*, 29 de julio de 1937, núm. 12.912, pág. 9178).

Egypt * — By Decree of 19 June, 1937, the Decree of 1 February, 1933, declaring the San José scale (*Aspidiotus perniciosus*) harmful to fruits has been repealed.

At the same time, Article 2 of the Decree of 30 August, 1932 [see this *Bulletin*, 1933, No. 2, p. 32] prohibiting the introduction of certain fruits and plants without the authorization of the Ministry of Agriculture has been modified.

The following additions have been made to paragraph (1) of Article 2 of Law No. 1 of 4 January, 1916:—

(*a*) Plants and parts of plants and the fruits of the families *Rosaceae, Vitaceae, Papilionaceae, Cupuliferae, Salicineae, Tiliaceae, Rutaceae, Solanaceae, Juglandaceae, Moraceae, Coniferae.*

(*b*) Persimmon fruits.

(*c*) Onions.

(*d*) All plants set in pots or in earth or sand.

The following paragraph is added to the aforesaid Decree of 30 August, 1932:—

'The insect *Aspidiotus perniciosus,* Comst. is declared harmful to fruits and plants'.

'The introduction into Egyptian territory of all fruits, plants and parts of plants attacked by the said insect is prohibited'.

Estonia. — By Dispatch No. 901739/c of 27 August, 1937, the Royal Ministry of Foreign Affairs in Italy has communicated to the International Institute of Agriculture that the Estonian Legation at Rome by Verbal Note

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* Communication from the Egyptian Legation at Rome.

No. 413 of 17 August, 1937, notified the said Ministry that the Estonian administrative centre for Plant Protection Service – provided for by the International Convention for Plant Protection, signed at Rome on 16 April, 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55] – is the Bureau for plant protection and seed control at the Ministry of Agriculture of Estonia (' Taimekaitse ja Seemnekontrolli amet Pôllutööministeeriumi juures ').

This Bureau was established by Decree of 3 June, 1937, published in the *Riigi Teataja*, No. 47, 1937, Article 430.

The adhesion of the Estonian Government to the above-mentioned Convention was notified on 5 August, 1936 to the Italian Ministry of Foreign Affairs [see this *Bulletin*, 1936, No 9, p. 200].

France. — By Ministerial Decree of 7 July, 1937, Article 2 of the Ministerial Decree of 15 March, 1932 [see this *Bulletin*, 1932, No 4, p 58] relative to the import of citrus fruits is abolished (*Journal officiel de la République française*, Paris, 18 juillet 1937, LXIX^e^ année, n^o^ 165, p 8127).

⁂ The technical Regulation of the control of the sanitary inspection of potato crops intended for sowing, taken in conformity with the Article 8 of the Ministerial Decree of 13 April, 1934 [see this *Bulletin*, 1934, No. 6, p 129], and approved by the Minister of Agriculture on 10 July, 1937, establishes the dispositions relative to the applications for admission to official control, the registering of the crops admitted to control, the organization of control methods, the valuation of the harvests, labels and guarantee seal and the control costs

This Regulation is followed by technical instructions for control and also two appendices (Appendix I Example of the application form required for official control, Appendix II. Notation list) (*Ibid.*, 15 août 1937, n° 189, p 9251-9253)

⁂ A Law of 24 July, 1937, contains the dispositions relative to the indemnification of the damages caused to the crops by game (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements agricoles*, Paris, 1^er^ août 1937, année 1937, n° 15, p. 314-315)

⁂ By Decree of 15 August, 1937, the customs house of Limoges is added to the list of offices designated in Article 1 of the Decree of 28 August, 1882, establishing the regulations regarding the introduction into France of plants and the various products of nurseries, gardens, green-houses and orangeries. (*Journal officiel de la République française*, 29 août 1937, n° 200, p. 9986).

Italy. — The Ministerial Decree of 9 July, 1937, establishing the cynegetic calendar for the year 1937, also confirms the absolute interdiction of shooting and capturing, during the year 1937-1938, the following birds —green woodpecker [*Gecinus viridis*], spotted woodpeckers [*Dendrocopus major, Dendr medius* and *Dendr. minor*], black woodpecker [*Dendr martius*], tomtits [*Parus* and *Aegithalus* spp.], willow-warblers [*Phylloscopus* spp.], penduline titmouse [*Remizus* *pendulinus*], golden crested wren [*Regulus regulus*], fire-crested wren [*Reg. ignicapillus*], wren [*Anorthura troglodytes*], common nightingale [*Aëdon luscinia*], and redbreast [*Erythacus rubecula*]. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 14 luglio 1937, anno 78°, n. 161, p. 2632).

⁂ By Decree of the Minister of Finance, dated 17 July, 1937, the application of the exchange duty at the reduced rate of 0.50 lire per cent., is extended from 15 August, 1937, to the following products:—

Lead arsenate in powder form, lead arsenate in paste form, calcium arsenate, sodium arsenate, 'Azol', 'Diaspidolo', 'Jemuro', 'Lim', 'Aphidus', 'Risuro', 'Crusbar', 'Alarvis', 'Entopex', 'Controcuscuta', colloidal arsenate of lead in paste and powder form, colloidal arsenate of calcium in powder, 'Basif', and zinc phosphide. (*Ibid.*, 12 agosto 1937, n. 186, p. 3052).

⁂ A Ministerial Decree of 29 July, 1937 establishes the regulations to be followed, from a phytosanitary aspect, regarding the import from abroad of potatoes intended exclusively for planting purposes, for the 1937-1938 season. (*Ibid.*, 2 agosto 1937, n. 177, pp. 2900-2902).

⁂ By Ministerial Decree of 31 August, 1937, the territory of the commune of Pannarano, Province of Benevento, has been declared infested with grape phylloxera. (*Ibid.*, 10 settembre 1937, n. 211, p. 3406).

Morocco (French Zone). — By four Decrees of the Director of Economic Affairs, dated 5 July, 1937, an inquiry is opened in the circumscription of the civil control of Fès-banlieue relative to the projects regarding the organization of four syndical associations for the control of plant parasites, denominated respectively 'de Zouarha', 'du Sais', 'de Mont-Fleuri' and 'de Dar-Debibarh'.

Compulsory participation in these syndical associations is required of all occupiers of land in any capacity whatsoever, on whose grounds are plants which are susceptible to the attacks of the plant parasites enumerated in the Vizirial Decree of 17 March, 1936 [see this *Bulletin*, 1936, No. 8, p. 179]. (Empire chérifien Protectorat de la République française au Maroc. *Bulletin officiel*, Rabat, 23 juillet 1937, XXVI^e année, n° 1291, p. 1029-1030).

Dominican Republic. — Taking into consideration that in the neighbouring Republic of Haiti the cotton boll weevil (*Anthonomus grandis*) is to be found, and that the presence of the said insect has been verified in other countries of America, Decree No. 1899 of 1 June, 1937, prescribes, *inter alia*, the following dispositions:—

Art. 1. — A zone twenty five kilometres in width shall be established at the Dominican-Haitian frontier, in which all cultivation of cotton is absolutely prohibited.

Art. 2. — Commencing from the limits of this zone, another eight kilometres in extent, shall be established in which cotton may only be cultivated in sandy soils.

Art. 3. — Cotton-growing plantations at present existing in the zones referred to in the aforesaid articles, shall be subjected to a special control by the agricultural authorities, in order that they may be destroyed as soon as the presence of the cotton boll weevil is observed in the said plantations or the presence of any other pest which may constitute a danger to the cotton plantations of the Republic.

Art. 4. — The introduction into the country of cotton, parts of this plant, seeds, sacks, or packing cases used for same, coming from Haiti, Mexico, Guatemala, Costa Rica, U. S. A., and Cuba is absolutely prohibited.

Art. 5. — The luggage of travellers from the countries mentioned in the previous article shall be inspected externally, by the Inspectors of the Immigration Service at the maritime ports and the frontier customs-houses, for which they shall be instructed by the Ministry of Agriculture, while the said Ministry shall establish a special inspection Service.

Art. 6. — The Dominican Consuls of the countries mentioned in Art 4 shall decline to visé all documents regarding the despach of all material stated in the said article, and the customs authorities, both maritime and frontier shall refuse all entry of the said material (*Revista de Agricultura*, Órgano oficial de la Secretaría de Estado de Agricultura, Ciudad Trujillo, República Dominicana, junio de 1937, vol XXVIII, núm 93, pág 281).

RECENT BIBLIOGRAPHY

ALVARADO, Juan Antonio Enfermedades del banano en Guatemala *Revista Agrícola*, Guatemala, 1937, vol XIV, núm 8, pág 408 a 422, 2 figs
[*Cercospora musae*, *Chloridium musae*]

ATANASOFF, D Virus diseases of plants a bibliography *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 4, S 339-463
[First supplement to the bibliographical list published in 1934 (see this *Bulletin*, 1934, No 6, p 132)]

BABEL, A. Erfordernisse im Pflanzenschutz *Forschungsdienst*, Berlin 1937, Bd 4, Heft 5, S 210-220

BAEYENS, J L'état actuel de nos connaissances au sujet des éléments soi-disant mineurs ou secondaires en physiologie végétale agricole *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas Vᵉ Congres international technique et chimique des Industries agricoles Schéveningue 1937 Comptes-rendus*, Naarden (Hollande), 1937, vol I, p 477-488 Bibliographie, p 488

BAKER, A. D. The pea moth, *Laspeyresia nigricana* Steph , on the Gaspe coast *Scientific Agriculture*, Ottawa, Canada, 1937, Vol XVII, No 11, pp 694-702, figs 1-4
[With title and summary also in French 'La teigne du pois, *Laspeyresia nigricana* Steph., sur la côte de la Gaspésie '].

BAKER, R. E. D , and WARDLAW, C W. Studies in the pathogenicity of tropical fungi. I. On the types of infection encountered in the storage of certain fruits. *Annals of Botany*, London, 1937, New Series, Vol. I, No 1, pp 59-65. Literature cited, p 65.

Beckley, V A Pyrethrum drying *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol II, No 4, pp 327-338, figs 1-4

Beran, Ferdinand Ein neuer Apparat zur Bestimmung der Fangkraft von Raupenleimen *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47 Bd, Heft 9, S 482-486, Abb 1-3

Berger, G Une maladie de la tomate la nécrose du collet due à l'*Alternaria Solani* Sorauer dans la région de Casablanca et de Fédala (Maroc) *Annales des Epiphyties et de Phytogénétique*, Paris, 1937, nouv sér, tome III, fasc 2, p 225-230, fig 1

Bernath, Ernesto L Enfermedades forestales, más especialmente la Entomología y Patología forestales II Las enfermedades forestales o más especialmente la Patología forestal Se trata de las enfermedades originadas por hongos o bacterios *Boletín del Ministerio de Agricultura*, Santiago de Chile, 1937, año IV, nº 11, págs 117 a 136

Bitancourt, A[gesilau] A Sobre Chaetothyrium guaraniticum Speg e Chaetothyrina musarum (Speg) Theissen *Archivos do Instituto Biologico*, São Paulo, 1936, vol 6, pags 5-22, figs 1-2, est 1-2 Bibliographia, pag 21
[In Portuguese, with summary also in English — *Chaetothyrina musarum* (syn *Chaetothyrium musarum*) is the causal organism of the sooty-blotch of the banana]

Bodenheimer, F S, und **Steinitz**, H Studies in the life history of the citrus mussel scale (*Lepidosaphes pinnaeformis* Bché) in Palestine *Hadar*, Tel-Aviv, Palestine, 1937, Vol X, Nos 7-8, pp 153-159, pls I-III Literature, p 159

Borzini, Giovanni Ancora sul mal del piombo del pero *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n 36, p 304, figg 1-3
[*Stereum purpureum*]

Brain, Chas K Weeds of Southern Rhodesia Part II *The Rhodesia Agricultura Journal*, Salisbury, 1937, Vol XXXIV, No 8, pp 612-615
[*Aponogeton* spp, *Potamogeton* spp, *Lagarosiphon muscoides, Ottelia vesiculata, Eichhornia speciosa*]

Braun, Hans Pflanzenhygiene Richtlinien und praktische Massnahmen zur Gesunderhaltung der Pflanzen Berlin Verlagsbuchhandlung Paul Parey, 1937, 98 S (Thaer-Bibliothek, 123 Band)

Breviglieri, Nino La defogliazione dei meli prodotta dalla Phyllosticta prunicola (Opiz) Sacc *Note di Frutticoltura*, Pistoia, 1937, anno XV, n 9, pp 133-137, figg 16-17

Brown, A W A A note on the utilisation of polysaccharides by a grasshopper *Bulletin of Entomological Research*, London, 1937, Vol 28, Pt 2, pp 333-336 References, p 336
[*Melanoplus bivittatus*]

Buddin, W, and **Wakefield**, E M A stem-canker disease of gardenias *The Gardeners' Chronicle*, London, 1937, Third Series, Vol CI, No 2623, pp 226-227, figs 89-92
[*Phomopsis* sp]

Carne, W M, and **Martin**, D Preliminary experiments in Tasmania on the relation of internal cork of apples and cork of pears to boron deficiency *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1937, Vol 10, No 1, pp 47-56, fig 1 References, p 56

CARNESALINI, Luigi. I danni di una grandinata al frumento. *L'Avanguardia Rurale*, Roma, 1937, anno VIII, n 8, pp 140-142

CASALE, Luigi. La necessità del risparmio del rame nella lotta antiperonosporica *Nuovi Annali dell'Agricoltura*, Roma, 1937, anno XVII, n 2, pp. 207-220.
[*Plasmopara viticola*]

CASALINI, Mario Le istituzioni create dallo Stato per l'agricoltura Roma, « I E. M I A. », presso « Villaggio e i Campi », [1937], X, 413 pp, 28 figg. L 50.
[In the fourth section of this volume, a detailed description is given on pp 205-252 of the central and peripheral organization, now in operation in Italy, regarding research and experimental work on plant diseases and pests and preventative and control measures for same]

CATONI, Giulio La coltura delle patate da semina in montagna *L'Italia Agricola*, Roma, 1937, anno 74, n 7, pp 502-519, 12 figg

CHAMBERLAIN, E E, and BRIEN, R M Tomato-seedling damping-off. Control by seed dusting *The New Zealand Journal of Agriculture*, Wellington, 1937, Vol 54, No. 6, pp 321-327, figs 1-3 Literature cited, p 327
[*Pythium ultimum*].

CHIAROMONTE, A[lfonso]. La quarta conferenza internazionale per le ricerche antiacridiche *L'Agricoltura Coloniale*, Firenze, 1937, anno XXXI, n 8, pp 337-343
[For the official proceedings of this Conference, see this *Bulletin*, 1937, No 8, p 185]

CHRISTENSEN, Clyde M Cephalosporium canker of balsam fir *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No 7, pp 788-791, figs 1-2
[*Cephalosporium* sp on *Abies balsamea*]

CLARKE, G H Important weeds of South Australia *The Journal of the Department of Agriculture of South Australia*, Adelaide, 1937, Vol XL, No 12, pp 956-958, 2 figs., 1 col pl
[*Marrubium vulgare*]

COLLINGE, Walter E The starling in the United States of America *Nature*, London, 1937, Vol 136, No 3516, pp 491-492
[*Sturnus vulgaris* as a bird causing damage to agriculture in North America]

R COMMISSARIATO GENERALE ANTICOCCIDICO Le cocciniglie degli agrumi e le fumigazioni cianidriche Catania, 1937, XIV, 73 pp, 4 figg, 16 tav

The Italian Government, through the intermediary of the 'R Commissariato generale anticoccidico', has organized, during the last ten years a systematic control of scale insects of citrus trees in Sicily and Calabria, by means of hydrocyanic acid gas fumigation carried out very extensively and effectively The original American method has been considerably improved, consequently the publication of a instructive manual giving precise information regarding the technique to be followed in the fumigation of the afore-mentioned Italian regions, and in the various conditions that may occur, was found to be very necessary

This manual comprises four chapters entitled as follows —

I — Le cocciniglie degli agrumi
II. — La chimica delle fumigazioni cianidriche
III. — La tecnica delle fumigazioni cianidriche degli agrumeti
IV. — Prevenzione degli infortuni e soccorsi d'urgenza

Scale insects harmful to citrus in Italy are — *Chrysomphalus dictyospermi*, *Aspidiotus hederae*, *Lepidosaphes citricola*, *Parlatoria zizyphus*, *P pergandei* var. *camelliae*, *Aonidiella aurantii*, *Saissetia oleae*, *Coccus hesperidum*, *Ceroplastes sinensis*, *Pseudococcus citri* and *Icerya purchasi*].

Comilia, R. Les principaux insectes nuisibles aux forêts. *Bulletin de la Société Centrale Forestière de Belgique*, Bruxelles, 1937, 44^{me} année, n^{os} 7 et 8, p. 344-363.

Cook, W. H. Chemical weed killers. I. Relative toxicity of various chemicals to four annual weeds. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. c, No. 7, pp. 299-323, fig. 1. References, p. 323.
[*Thlaspi arvense*, *Brassica arvensis*, *Chenopodium album*, *Avena fatua*].

Cottier, W., and Taylor G. G. The tomato mite (*Phyllocoptes* sp.). *The New Zealand Journal of Agriculture*, Wellington, 1937, Vol. 55, No. 1, pp. 28-31, figs. 1-2. Literature cited, p. 31.

Couturier, A. Remarques sur une attaque de *Chortophila cilicrura* Rond sur haricot. *Revue de Zoologie agricole et appliquée*, Bordeaux, 1937, 36^{e} année, n^{o} 3, p. 33-36, fig 4, pl. II.

Cristóbal, Ubaldo López. Un nuevo enemigo de la agricultura. El pulgón verde de las graminaceas y sus enemigos naturales. *Agrícola*, Buenos Aires, 1937, año XXXIV, n^{o} 383, págs. 537 a 541.
[*Toxoptera graminum*].

Crosier, Willard, Patrik, Stewart, and Taylor, Lloyd. Chemical treatments helpful in germination tests of seeds. *Phytopathology*, Lancaster, Pa , 1937, Vol. 27, No 7, pp. 797-798, fig 1

Curini Galletti, Albizzo Sull'ingiallimento delle piantine di frumento sotto i filari delle viti Indagini, considerazioni *Rivista di Patologia Vegetale*, Pavia, 1937, anno XXVII, nn 5-6, pp 149-160 Bibliografia, p 160.
[See also the notes of A Messori and A Modena this *Bulletin*, 1937, No 6 p. 128].

Daines, Robert H Antagonistic action of Trichoderma on Actinomyces scabies and Rhizoctonia solani. *American Potato Journal* Sommerville and New Brunswick, New Jersey, 1937, Vol XIV, No 3, pp 85-93 Literature cited, p 93
[*Trichoderma lignorum*].

Dastur, Jehangir Fardunji 'Pan-sukh' disease of rice in the Central Provinces *Agriculture and Live-stock in India*, Delhi, 1937, Vol VII, Pt IV, pp. 500-511 pl. XXX. References, p. 511
[A physiological disease]

Davies, R. M The control of white stem borer of coffee *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. II, No. 4, pp 293-297.
[*Anthores leuconotus*].

Davis, Glen N., and Henderson, W J. The interrelation of the pathogenicity of a Phoma and a Fusarium on onions. *Phytopathology*, Lancaster, Pa , 1937, Vol. 27, No 7, pp. 763-772, figs 1-6. Literature cited, p. 772.
[*Phoma terrestris*, *Fusarium zonatum* forma 1].

† d'Emmerez de Charmoy, D. La lutte contre la mosaïque de la canne à sucre à la Réunion. *Revue agricole de l'Ile de la Réunion*, Saint-Denis, 1937, nouv. sér., 42^{me} année, janvier 1937, p. 1-10.

de Santis, Luis. Enfermedades de los álamos en el Delta del Paraná. *Agrícola*, Buenos Aires, año XXXIV, n^{o}. 383, págs. 489 a 491.
[*Melampsora larici-populina* and a physiological disease ('mancha del álamo') on *Populus nigra* var. *italica*].

Di Micheli, G[iovanni]. Una nuova malattia dell'alloro dovuta ad un oidio. *Bullettino della R. Società Toscana di Orticultura*, Firenze, 1937, anno LXII, nn. 5-6, pp. 85-89, figg. 1-5.
[*Oidium erysiphoides* on *Laurus nobilis* at Florence].

Di Micheli Giovanni. Una nuova ruggine del pino austriaco. *L'Alpe*, Firenze, anno XXIV, n. 7, pp. 277-279, figg. 1-2. Bibliografia, p. 279.
[*Cronartium asclepiadeum* on *Pinus nigra* var. *austriaca* near Trieste].

Dohanian, S. M. The introduction of parasites of the sugarcane borer into Puerto Rico. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1937, Vol. XXI, No. 2, pp. 237-241.
[Parasites of *Diatraea saccharalis*].

Dohanian, S. M. The importation of Coccinellid enemies of Diaspine scales into Puerto Rico. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1937, Vol. XXI, No 2, pp. 243-247 Literature cited, p. 247.
[Coccinellid predators of *Aspidiotus destructor* and *Chrysomphalus aurantii*].

Dominik, Tadeusz. Spostrzeżenia i rozważania nad holenderską chorobą wiązów powodowaną przez Graphium ulmi Schwarz. *Roczniki Nauk Rolniczych i Leśnych*, Poznań 1937, tom XXXVIII, zeszyt 1, str 134-140, ryc 1-6
[In Polish, with title and summary also in French.— 'Quelques observations sur la maladie de l'orme due au *Graphium ulmi* Schwarz'].

Doolittle, S. P, and **Beecher**, F. S. Seed transmission of tomato mosaic following the planting of freshly extracted seed. *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No. 7, pp. 800-801.

Dufrénoy, J[ean] Le « spotted-wilt » *Annales des Epiphyties et de Phytogénétique* Paris, 1937, nouv. sér, tome III, fasc 2, p 187-223, fig 1-25 Bibliographie p 221-223.
[A virus disease observed on tomato, tobacco and ornamental plants in the South-west of France

Dufrenoy, J[ean] Maladies des plantes Défense contre ces maladies Influence des élements secondaires sur la production et l'état sanitaire des plantes industrielles. *Royaume des Pays-Bas Commission Nationale des Industries agricoles des Pays-Bas Ve Congrès international technique et chimique des Industries agricoles. Scheveningue 1937 Comptes-rendus*, Naarden (Hollande), 1937, vol I, p. 410-413.

Dufrénoy, J[ean] Pathologie de la betterave, pathologie de la canne à sucre et maladies du coton *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. Ve Congrès international technique et chimique des Industries agricoles. Schéveningue – 1937 Comptes-rendus*, Naarden (Hollande), vol. I, p. 438-450, graph 1-6 Bibliographie, p. 445 et 449

Dufrénoy, J[ean]. Les maladies de carence *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. Ve Congrès international technique et chimique des Industries agricoles Schéveningue – 1937 Comptes-rendus*, Naarden (Hollande), 1937, vol. I, p. 468-476, fig 1-4.

Dufrénoy, Jean. Modifications of cell structure in "halo wildfire" and "epidemic wildfire". *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No 7, pp 792-796, figs. 1-5.
[*Bacterium tabacum*].

Dwyer, R. E. P. The diseases of coco-nuts (Cocos nucifera) in New Guinea *The New Guinea Agricultural Gazette*, Rabaul, 1937, Vol. 3, No. 1, pp. 28-93, figs. 1-16. Literature cited, pp. 91-93.

Edney, E. Berry. A study of spontaneous locomotor activity in *Locusta migratoria migratorioides* (R. & F.) by the actograph method. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 2, pp 243-278, figs. 1-16. References, pp. 277-278.

Fajans, E , and Martin, H The incorporation of direct with protective insecticides and fungicides II The effects of spray supplements on the retention and tenacity of protective deposits *The Journal of Pomology and Horticultural Science*, London, 1937 Vol XV, No 1, pp 1-24 References, p 24

Ferrière, Ch Notes on two new oriental parasites of the coffee mealy-bug (*Pseudococcus lilacinus*) *Bulletin of Entomological Research*, London, 1937, Vol 28, Pt 2, pp 315-320, figs 1-2 References, pp 319-320
[*Pseudaphycus orientalis* n sp and *Anagyrus lilacini* n sp in the Philippine Islands Description in English]

Fife, L C Damage to Sea Island cotton by the West Indian blister mite (*Eriophyes gossypii* Banks) in Puerto Rico *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P R , 1937 Vol XXI, No 2, pp 169-177, figs 1-3 Literature cited, p 177

Fife L C Status of the pink bollworm in Puerto Rico during 1935-36 *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P R , 1937, Vol XXI, No 2, pp 233-235
[*Pectinophora* (*Platyedra*) *gossypiella*]

Fikry Amin Water-table effects III Further studies on relative incidence of diseases on stone fruit trees *Ministry of Agriculture Egypt Technical and Scientific Service* (*Mycological Section*) *Bulletin No 181*, Cairo, 1937, 12 pp , 4 figs 9 pls Literature cited, p 12
[In this respect see this *Bulletin* 1936, No 4 p 87]

Findlay D H and Sykes E T The control of potato blight by spraying and destruction of haulm *The Journal of the Ministry of Agriculture* London, 1937, Vol XLIV No 6 pp 546 551
[*Phytophthora infestans*]

Fish S Pugsley, A T and Ryland J P " Leak or " watery wound rot of potatoes *The Journal of the Department of Agriculture Victoria Australia*, Melbourne 1937 Vol XXXV Pt 6 pp 287 289 figs 1 2 References p 289
[*Pythium de baryanum*]

Fox Wilson, G The root knot eelworm Heterodera marioni (Cornu) Goodey and its relation to plants growing outdoors in the British Isles and in certain European countries *Journal of the Royal Horticultural Society* London 1937 Vol LXII Pt 8 pp 336 346, figs 93 95

Francke-Grosmann Helene Zur Morphologie der Tannenlaus Dreyfusia prelli Grosmann und ihrer Galle auf Picea orientalis Lk *Zeitschrift fur Pflanzenkrankheiten* (*Pflanzenpathologie*) *und Pflanzenschutz* Stuttgart 1937, 47 Bd , Heft 9 S 465-482 Abb 1 12, 1 Taf Literaturverzeichnis S 481-482

Gallay, R La rotenone nouvel insecticide *La Terre Vaudoise*, Lausanne, 1937, XXIXe annee, n° 15, p 1-3

Ghosh C C The pulse beetles (*Bruchidae*) of Burma *The Indian Journal of Agricultural Science* Delhi, 1937, Vol VII, Pt III, pp 395-412, pls XXXII-XXXIII References p 406
[*Bruchus* spp , *Araecerus fasciculatus*, *Caryoborus gonager*]

Giddings, N J A greenhouse method for testing resistance to curly top in sugar beets *Phytopathology*, Lancaster, Pa , 1937, Vol 37, No 7, pp 773-779, figs 1-5

Godoy V , Segundo La filoxera Reseña historica sobre este temible insecto, y lo que de él nos dice el entomólogo señor Eward E Blanchard *El Campo*, Buenos Aires, 1937, año XXI, nº 243, págs 137 a 140, 6 figs
[*Peritymbia* (*Phylloxera*) *vitifoliae* (*vastatrix*)]

Goidànich, Gabriele. Le alterazioni del legno da parassiti cromogeni. *L'Italia Agricola*, Roma, 1937, anno 74, n. 8, pp. 565-576, figg. 1-8, 1 tav. a col. Bibliografia, p. 576.

[*Ophiostoma piliferum*, *Sphaeropsis ellisii* var. *chromogena*, *Grosmannia serpens*, *Graphium penicillioides*, *Gr. silanum*, *Fusarium javanicum*, *Fusicoccum tingens* in Italy].

Goidànich, Gabriele. Das Ulmensterben in Italien. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 8, S. 417-425, Abb. 1-9.

[*Ophiostoma ulmi*].

Görnitz, Karl. Cantharidin als Gift und Anlockungsmittel für Insekten. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1937, Bd. 4, Nr. 2, S. 116-157, Fig. 1-6. Schriftenverzeichnis, S. 155-157.

Grancini, Pietro. L'impiego di varietà resistenti nella lotta contro le malattie delle piante. *Bullettino dell'Agricoltura*, Milano, 1937, anno 71°, n. 37, p. 1.

Grubb, N. H. Bacteriosis of cherry trees: relative susceptibility of varieties at East Malling. *The Journal of Pomology and Horticultural Science*, London, 1937, Vol. XV, No. 1, pp. 25-34. References, p. 34.

[*Pseudomonas mors-prunorum*].

Hansford, C. G. Annotated host list of Uganda parasitic fungi and plant diseases – Part III. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. III, No. 1, pp. 79-84.

Hanson, H. S. Notes on the ecology and control of pine beetles in Great Britain. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 2, pp. 185-236, figs. 1-8, pls. VI-VIII. References, pp. 235-236.

[*Myelophilus piniperda*, *M. minor*, *Hylastes ater*, *Hylobius abietis*].

Harris, W. Victor. The grey field mouse. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. II, No. 4, pp. 315-318, figs. 1-2. References, p. 318.

[*Mastomys coucha*].

Hassebrauk, K. Pilzliche Parasiten der Getreideroste. II. Mitteilung. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 4, S. 465.

[See also this *Bulletin*, 1937, No. 2, p. 40. — *Verticillium album minimum*, *V. compactiusculum*, *V. malthousei*, *Cephalosporium lefroyi*].

Hills, Orin A. The beet leaf hopper in the central Columbia River breeding area. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 1, pp. 21-31, figs. 1-7.

[*Eutettix tenellus*].

Hofmann, Christoph. Die Bekämpfung der Weisstannenlaus Dreyfusia nüsslini C. B. (= nordmannianae Eckst.). *Zeitschrift für angewandte Entomologie*, Berlin 1937, Bd. XXIV, Heft 2, S. 161-180, Abb. 1-5. Literatur, S. 179-180.

Hoffmann, William E. Kwangtung Aphididae including hostplants and distribution. *Lingnan Science Journal*, Canton, China, 1937, Vol. 16, No. 2, pp. 267-302.

Hopkins, J. C. F. A programme for the control of diseases of apple trees in Southern Rhodesia. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 8, pp. 619-630, 1 fig. References, p. 630.

[*Glomerella cingulata*, *Physalospora cydoniae*, *Schizophyllum commune*, *Diaporthe perniciosa* (*Phomopsis mali*), *Coniothecium chomatosporum*, *Valsa leucostoma*, *Podosphaera leucotricha*, *Corticium salmonicolor*, *Armillaria mellea*, *Leptothyrium pomi*, *Venturia inaequalis*, etc.].

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-37. Monthly Report No. 55. June, 1937. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 8, p. 681.
[*Nomadacris septemfasciata*].

JENKINS, A. E. Comparações culturaes e inoculações em videira com os fungos « Elsinoe fawcetti », « E. ampelina » e « E. veneta ». *Archivos do Instituto Biologico*, São Paulo, 1936, Vol. 7, pags. 23-32, figs. 1-9, est. 3-5. Bibliographia, pag. 31.

JOESSEL, P.-H., LIDOYNE, A., [et] PAMPILLON, F. Trois années d'essais de traitements contre la chlorose des arbres fruitiers. *Annales des Epiphyties et de Phytogénétique*, Paris, 1937, nouv. sér., tome III, fasc. 2, p. 231-247. Bibliographie, p 246-247

JOHNSTON, John R. La causa de la enfermedad del banano, llamada "Sigatoka". *Revista Agricola*, Guatemala, 1937, vol. XIV, núm. 8, págs. 397 a 400, 3 figs. [This disease caused by *Cercospora musae* is new to Guatemala].

JONES, Leon K, and VINCENT, C. L. The susceptibility of potatoes to the vein-banding virus. *Journal of Agricultural Research*, Washington, D C, 1937, Vol. 55, No 1, pp 69-79, figs 1-5. Literature cited, p. 79.

KADOCSA, Gy Mühlenindustrielle Beziehungen der Getreidewanzen in Ungarn. *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. V^e Congrès international technique et scientifique des Industries agricoles. Schéveningue–1937 Comptes rendus*, Naarden (Hollande), 1937, vol I, p 451-456 [With title and summary also in French — 'Les rapports des punaises [des] céréales en Hongrie au point de vue de l'industrie meunière' — *Eurygaster maura, E austriaca, Aelia acuminata, A. rostrata*]

KAUFERT, Frank, and SCHMITZ, Henry Studies in wood decay VI The effect of arsenic, zinc, and copper on the rate of decay of wood by certain wood-destroying fungi *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No 7, pp 780-788, fig. 1. Literature cited, pp 787-788
[*Lenzites trabea, Lentinus lepideus, Trametes serialis, Polyporus anceps*]

KEARNS, H. G. H, MARTIN, H., and WILKINS, A Investigations on egg-killing washes. II. The ovicidal properties of hydrocarbon oils on *Aphis pomi* De Geer. *The Journal of Pomology and Horticultural Science*, London, 1937, Vol. XV, No. 1, pp. 56-68. References, pp. 67-68

KING, C. B. Redman Notes on the life-history of *Eriophyes carinatus*, Green. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 32, pp 311-314. References, p. 314.

LAMBERMONT, Fernand L'emploi des bouillies cupriques au carbonate de soude dans les cultures de betteraves sucrières. *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. V^e Congrès international technique et chimique des Industries agricoles. Schéveningue-1937. Comptes-rendus*, Naarden (Hollande), 1937, vol. I, p. 501-507, 1 fig.

LEMAIRE, E. Journée de la défense sanitaire des végétaux (Paris, 19 mars 1937). *Bulletin de la Société d'Encouragement pour l'Industrie Nationale*, Paris, 1937, 136^e année, n^{os} 5-6, p. 283-289.

LE PELLEY, Richard H. Notes on the life-history of *Cheiloneusus noxius*, Compere (Hym.). *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 2, pp. 181-183, fig. 1. References, p. 183.

LEVER, R. J. A. W. Economic insects and biological control in the British Solomon Islands. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 2, pp. 325-331, figs. 1-3. References, p. 331.

LINDENBEIN, Werner. Anatomische Beiträge zur Kenntnis der Degeneration und der Nekrose bei Kulturpflanzen in ihrer Bedeutung für die Landwirtschaft. *Angewandte Botanik*, Berlin 1937, Bd. XIX, Heft 3, S. 313-367, Abb. 1-38. Literaturverzeichnis, S. 365-367.

LINFORD, M. B., [and] **OLIVEIRA**, J. M. The feeding of hollow-spear nematodes on other nematodes. *Science*, Lancaster, Pa., 1937, Vol. 85, No. 2203, pp. 295-297. [*Aphelenchoides*, *Dorylaimus*, *Discolaimus* and *Actinolaimus* spp.].

LIRO, J. I Die wichtigsten Daten der Pflanzenschutzgesetzgebung Finnlands. Veroffentlichung des Landwirtschaftsministeriums Nr 19, Helsinki 1937, 17 S.

MADDEN, A. H. Notes on the changa, or West Indian mole cricket, in Puerto Rico in 1935 and 1936. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1937, Vol. XXI, No. 2, pp. 115-120.

[*Scapteriscus vicinus*].

MALENOTTI, Ettore Il fattore sociale nella difesa fitosanitaria *L'Italia Agricola*, Roma, 1937, anno 74, n. 8, pp. 549-555.

[Italian text of the article already published in German see this *Bulletin*, 1937, No 8, p 189].

MCFADDEN, E. S False "black chaff" of wheat produced by inoculating with stem rust *Phytopathology*, Lancaster, Pa., 1937, Vol 27, No 7, p. 801 [*Puccinia graminis tritici*].

MEIER, K. Ueber eine durch Kalimangel bedingte " Gelbsucht " an Thujapflanzen *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1937, LI. Jahrg., Heft 3, S 297-306, Taf. 1-4.

[With summary also in French]

MÉTALNIKOV, S Utilisation des spores dans la lutte contre les insectes nuisibles *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1937, tome CXXV, nº 23, p. 1020-1023, 1 fig

[The attention of the A was turned to the study of sporiferous micro-organisms and spores which he succeeded in preparing in the dry state in powder form The spores in powder form show a considerable resistance and are able to maintain their virulence for many years without requiring any special attention This powder of virulent germs may be easily applied, in the same way as any chemical product, either by means of the dusting apparatus usually adopted in agriculture, or mixed with tap water, so as to be sprayed on the infected plants The A asserts that the results obtained from the experiments carried out on different insect pests have all been very successful].

MINISTRY OF AGRICULTURE, EGYPT. CROP PROTECTION SECTION PLANT QUARANTINE SUB-SECTION. Plant quarantine import restrictions of the Kingdom of Egypt *Booklet No. 20*, Cairo, 1937, 37 pp

[A pamphlet summarizing the actual plant quarantine legislation in Egypt]

MITRA, M. An anthracnose disease of sann-hemp *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. III, pp. 443-449, pls XXXIV-XXXVII References, p. 449.

[*Colletotrichum curvatum* on *Crotalaria juncea*]

MITRA, M. Studies on the stinking smut or bunt of wheat in India. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt III, pp 459-478, figs. 1-2. References, p. 478.

[*Tilletia indica*].

MOLLURA, Pedro A. Caldo bordelés. Aplicación en los frutales *Agricola*, Buenos Aires, 1937, año XXXIV, nº 383, págs. 499-505

MOLODOJNIKOV, M. The squill as a raticide. *Soviet Subtropics*, Moscow, 1937, 1 (29), pp. 72-73.
[In Russian, with title also in English].

MONCRIEFF, Joaq[uín] O. Informe del Ingeniero Joaquín O. Moncrieff, sobre la comisión que se designó a Bananera, con el objeto de estudiar la manera de atacar la enfermedad denominada "Sigatoka". *Revista Agricola*, Guatemala, 1937, vol. XIV, núm. 8, págs. 401 a 407, 9 figs.
[*Cercospora musae*].

MONTE, Oscar. Os insectos damnihnos. XLI – Um percevejo das Solanáceas (Corythaica planaris, Uhler). *Chacaras e Quintaes*, S. Paulo, 1937, anno 28, vol. 56, n° 1, pags. 79-80, 1 fig.

MORQUER, René. Recherches morphogéniques et concurrence vitale chez les Hypocréacées viticoles *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1937, tome 204, n° 8, p. 615-617.

MOSSOP, M. C. Some tobacco pests that can be serious. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 8, pp. 606-611.
[*Bemisia rhodesiaensis, Ephestia elutella, Lasioderma serricorne*].

MULLER, H. R. A. De aardappelsituation op Java als gevolg van het optreden van eenige nieuwe ziekten. *Landbouw*, Buitenzorg 1937, XIII jaarg., no 6, blz. 285-313, fig. 1-2. Literatuur, blz. 310-311.
[In Dutch, with title and summary also in English — 'Difficulties in potato growing in Java as a consequence of some important diseases' — *Bacterium solanacearum, Phytophthora infestans, Colletotrichum atramentarium*].

MÜLLER, Wilhelm. Das Blattalchen des Tabaks *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd, Heft 8, S. 447-452, Abb. 1-2. Schrifttum, S. 452.
[*Aphelenchus ritzema-bosi*].

MURPHY, Paul A., and LOUGHNANE, J. B. A ten years' experiment on the spread of leaf roll in the field. *The Scientific Proceedings of the Royal Dublin Society*, Dublin, 1937, Vol. 21, N. S., Nos. 48-53, pp. 567-579, figs. 1-3. Literature cited, p. 579.
[A virus disease of the potato]

NEW SOUTH WALES. DEPARTMENT OF AGRICULTURE Plant diseases recorded in New South Wales. Supplement No. 1. Sydney, 1937, 7 pp.
[This is the first supplement to the original list published in December, 1934]

NG, Yuk Chau. Notes on the life history of Prodenia littoralis Boisd. (Lep., Noctuidae). *Lingnan Science Journal*, Canton, China, 1937, Vol. 16, No. 2, pp. 261-266, pl. 3. References, p. 266.

NICOLAS, G[ustave] et AGGÉRY, B[erthe]. Une maladie bactérienne du cyclamen de Perse. *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1937, tome CXXIV, n° 5, p. 411-414.
[A bacterium of the *Coccus* type on *Cyclamen persicum*]

NICOLAS, Gustave, et AGGÉRY, Berthe. Sur la persistance de la chlorophylle à la suite de l'action bactérienne. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1937, tome 204, n° 8, p. 611-613.

NITSCHE, G., und MAYER, K. Untersuchungen über die Lebensgeschichte der Rübenblattwanze. IV. *Arbeiten uber die physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1937, Bd. 4, Nr. 2, S. 94-104, Fig. 1-6. Schrifttum, S. 104.
[*Piesma quadratum*].

NITSCHE, G., und MAYER, K. Zur Bekämpfung der Rübenblattwanze (Piesma quadratum Fieb.). V. *Zeitschrift für Pflanzenkrankheiten* (*Pflanzenpathologie*) *und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 8, S. 453-461, Abb. 1-4. Schrifttum, S. 460-461.

NOBLE, Mary. The morphology and cytology of Typhula Trifolii Rostr. *Annals of Botany*, London, 1937, New Series, Vol. I, No. 1, pp. 67-98, figs. 1-7, pls. II-III. Literature cited, pp. 96-97.

NOBLE, N. S. An egg parasite of the green vegetable bug. *The Agricultural Gazette of New South Wales*, Sydney, 1937, Vol. XLVIII, Pt. 6, pp. 337-341, figs. 1-5.
[*Microphanurus basalis*, a parasite of *Nezara viridula*.]

OCFEMIA, G. O. The abacá-disease situation in Davao. *The Philippine Agriculturist*, Laguna, P. I., 1937, Vol. XXVI, No. 3, pp. 229-236, figs. 1-2.
[The diseases of *Musa textilis* in Davao are bunchy-top, a mosaic-like disease, and the so-called new disease which seems to be the result of the combined effects of banana-wilt-like disease (*Fusarium oxysporum* f. 3 ?) and the stem weevil, *Odoiporus* sp.]

OCHOA R., Ignacio. Una enfermedad de la caña de azúcar. *Revista Nacional de Agricultura*, Bogotá, 1937, año XXXII, núm. 391, págs. 841 a 843.
[The disease observed in Colombia closely resembles mosaic disease.]

O' CONNOR, B. A. Progress of work on Sexava spp., the coco-nut treehopper. *The New Guinea Agricultural Gazette*, Rabaul, 1937, Vol. 3, No. 1, pp. 1-4.

ORTH, H. Der Einfluss der Luftfeuchtigkeit auf das Keimverhalten der Sporangien von Phytophthora infestans (Mont.) de Bary, des Erregers der Kartoffelkrautfäule. *Zeitschrift für Pflanzenkrankheiten* (*Pflanzenpathologie*) *und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 8, S. 425-447, 7 Abb. Schrifttum, S. 445-447.

PACHECO H., M. Estudio sobre la enfermedad de los bananales. *Revista Agrícola*, Guatemala, 1937, Vol. XIV, núm. 8, págs. 423 a 428.
[*Cercospora musae*.]

PAL, B. P., and TANDON, R. K. Types of tobacco leaf-curl in Northern India. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. III, pp. 363-393, figs. 1-5, pls. XXII-XXXI. References, p. 393.

PANSE, V. G., and PATEL, A. F. A genetical study of roots in relation to disease-resistance in cotton. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. III, pp. 451-457. References, p. 457.

PASSALACQUA, T. Una probabile virosi della "Vicia faba" L. (Nota preliminare). *Rivista di Patologia Vegetale*, Pavia, 1937, anno XXVII, nn. 5-6, pp. 145-148, 1 fig.

PASINETTI, L[auro]. La "bacteriosi del mais" in Italia da "Aplanobacter Stewarti" Smith (Nota II). *Rivista di Patologia Vegetale*, Pavia, 1937, anno XXVII, nn. 7-8, pp. 221-229.
[See also this *Bulletin*, 1936, No. 8, p. 187.]

PERKINS, J. F. On a new species of Echthromorpha (Hym. Ichn.) from Fiji. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 2, pp. 171-172.
[*Echthromorpha tirathabae* n. sp. Description in English. This new species has been bred from *Tirathaba trichogramma*, a pest of coconuts.]

PETRI, Lionello. La difesa fitosanitaria e la ricostituzione dei castagneti. *L'Italia Agricola*, Roma, 1937, anno 74, n. 7, pp. 489-494, 2 figg.
[*Phytophthora cambivora*, *Castanea crenata* resistant to this parasite.]

PFEIFFER, J. Ph., et BLIJDORP, P. A. The use of mineral oil products for the control of plant-diseases. *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. V^e Congrès international technique et chimique des Industries agricoles Schéveningue-1937. Comptes-rendus*, Naarden (Hollande), 1937, vol. I, p 489-500.
[With title and summary also in French — 'L'usage des produits de l'huile minérale pour combattre les maladies des plantes'].

PHILIPP, W. Wichtige Feinde des Beerenobstes. *Die kranke Pflanze*, Dresden 1937, 14 Jahrg, Heft 7/8, S. 121-124, 1 Abb., 1 Taf.
[*Byturus fumatus, Bembecia hylaeiformis, Sesia tipuliformis*].

PRUTHI, Hem Singh. On the *Pyrilla* pest of sugarcane in India. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. III, pp. 511-512, pls XLIV-XLVI.
[*P perpusilla, P aberrans, P pusana*].

PUSSARD, R La teigne de la lavande (*Sophronia humerella* Schiff). *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1937, tome XXIII, n° 11, p 387-395

QUANJER, H M La prétendue augmentation et aggravation des maladies des plantes à cause de la culture *Royaume des Pays-Bas Commission Nationale des Industries agricoles des Pays-Bas V^e Congrès international technique et chimique des Industries agricoles Schéveningue- 1937 Comptes-rendus*, Naarden (Hollande), 1937, vol I, p 414-424

RALSKI, Eugenjusz Rozpowszechnienie i rasy biologiczne rdzy brunatnej pszenicy *Puccinia triticina* Erikss w Polsce *Roczniki Nauk Rolniczych i Leśnych*, Poznań 1937, tom XXXVIII, zeszyt 1, str 112-133 1 mapa, 1 ryc. Literatura, str. 130-132.
[In Polish, with title and summary also in German — 'Die Verbreitung und physiologische Formen des Weizenbraunrostes *Puccinia triticina* Erikss in Polen']

RAUCOURT La question des dépôts toxiques sur les fruits *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1937, tome XXIII, n° 7, p 221-227

REICHERT, I, and LITTAUER F A new method of control of wastage in oranges *Hadar*, Tel-Aviv, Palestine, 1937, Vol X, Nos 7-8, pp 141-145, figs 1-2 Bibliography, p 145
[*Diplodia, Penicillium*]

RITSCHL, Albrecht. Untersuchungen uber Gloeosporium fagicolum Passerini, den Erreger des Blattfleckenkrankheit der Buche *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Bd., Heft 9, S 486-491, Abb 1-5 Schriftenverzeichnis, S 491.

RIVNAY, E Moisture as the factor affecting wing development in the citrus aphis, *Toxoptera aurantii*, Boy *Bulletin of Entomological Research*, London, 1937, Vol 28, Pt 2, pp 173-179. References, p. 179.

ROBERTI, Domenico Insetto dannoso alla coltura del granoturco la sesamia. *L'Avanguardia Rurale*, Roma, 1937, anno VIII, nn. 5-6, pp 93-94.
[*Sesamia cretica*].

ROCCI, Ubaldo. La "zigena della vite" ed alcune specie italiane del gen. *Procris* (s l). *Bollettino dell'Istituto di Entomologia della R. Università di Bologna*, Bologna, 1937, Vol IX, pp 113-152, figg I-XI.
[The identity of the true 'zigema della vite' (*Theresia ampelophaga*) having been established, the most frequent or important forms of the genera *Rhagades* and *Procris* s. l are reviewed]

ROGER, L. Les cultures industrielles tropicales considérées au point de vue phytosanitaire. *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. Ve Congrès international technique et chimique des Industries coles. Schéveningue – 1937. Comptes-rendus*, Naarden (Hollande), 1937, vol I, p 430-437

ROLAND, G. Magnésie et betterave *Royaume des Pays-Bas Commission Nationale des Industries agricoles des Pays-Bas Ve Congrès international technique et chimique des Industries agricoles Schéveningue – 1937 Comptes-rendus*, Naarden (Hollande), 1937, vol I, p 457-467

RUSSO, Giuseppe V contributo alla conoscenza dei Coleotteri Scolitidi Fleotribo *Phloeotribus scarabaeoides* (Bern) Fauv Parte prima *Bollettino del Laboratorio di Entomologia Agraria di Portici*, Portici, 1937, vol I, pp 1-262, figg I-CXXVI, tav. I-II Bibliografia, pp 245-254
[Morphology, anatomy and histology of *Phloeotribus scarabaeoides*]

SALIMATH, Rao Bahadur S S, KULKARNI, V S, and GAYATONDE, R D Eradication of *Cynodon dactylon* (*hariali* – doub grass) by tractor ploughing in the Bombay-Karnatak *Agriculture and Live-stock in India*, Delhi, 1937, Vol VII, Pt IV, pp 479-492, pls XXVI-XXVIII

SCHINDLER, Herbert Untersuchungen uber eine an Cereus grandiflorus Mill beobachtete Gewebenekrose. *Angewandte Botanik*, Berlin 1937, Bd XIX, Heft 4, S 505-508, Abb 1-2. Schriftenverzeichnis, S 508
[The cause of this disorder has not been determined

SCHNEIDER-ORELLI, O Die Weisstannenlaus Dreyfusia nusslini an alten Baumen *Schweizerische Zeitschrift fur Forstwesen*, Bern 1937, 88 Jahrg, Nr 9, S 232-234 Literaturverzeichnis, S. 234

SCOTT, Hugh Notes on *Cionus scrophulariae* L infesting a South African plant *Phygelius capensis* E Mey *The Entomologist's Monthly Magazine*, London, 1937, Third Series, Vol XXIII, No 266, pp 29-34, pl I References, pp 33-34

SELLKE, Kurt Beobachtungen uber die Bekämpfung von Wiesenschnakenlarven (Tipula paludosa Meig und Tipula czizeki de J). *Zeitschrift fur angewandte Entomologie*, Berlin 1937, Bd XXIV, Heft 2, S 277-284 Literatur, S 284

SÉLARIÈS, et ROHMER. Essais sur la carie du ble en Alsace *Annales des Epiphyties et de Phytogénetique*, Paris, 1937, nouv ser, tome III, fasc 2 p 175-185 Bibliographie, p. 183-185
[*Tilletia tritici, T levis*]

SHANDS, R. G Longevity of Gibberella saubinetii and other fungi in barley kernels and its relation to the emetic effect *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No 7, pp 749-762, fig 1 Literature cited p 762
[*Gibberella saubinetii, Fusarium culmorum, F avenaceum, Helminthosporium gramineum*, etc]

SIMMONDS, J H, and MITCHELL, R S The squirter disease in bananas with special reference to its control. *Queensland Agricultural Journal*, Brisbane, 1937, Vol XLVII, Pt 6, pp. 542-548. References, p 548
[*Nigrospora*].

SLOAN, W. J. S. Seedling pests of cotton and their control *Queensland Agricultural Journal*, Brisbane, 1937, Vol XLVII, Pt 6, pp 538-541
[*Euxoa radians, Dasus macleayi, Aphis gossypii, Thrips tabaci Empoasca* spp., *Phaulacridium gemini, Valanga irregularis, Nisotra breweri, N submetallica, Heliothis obsoleta, Loxostege affinitalis*]

Smith, Roger C. Magnesium sulfate – an unsatisfactory substitute for arsenicals in grasshopper baits. *Science,* Lancaster, Pa, 1937, New Series, Vol. 86, No. 2227, pp. 226-228.
[Regarding this subject see the note of H. W. and M. S. Frings this *Bulletin,* 1937, No. 7, p 162]

Sprague, Roderick. A further note on the fungus causing a white foot rot of wheat and oats. *Phytopathology,* Lancaster, Pa., 1937, Vol. 27, No. 7, pp. 798-800.
[*Rhizoctonia* sp]

Swan, D. C The red legged earth mite. *The Journal of the Department of Agriculture of South Australia,* Adelaide, 1937, Vol. XL, No. 12, pp. 946-948, figs. 1-2.
[*Halotydeus destructor*]

Taylor, G G Application of orchard sprays IV. Spray coverage. *The New Zealand Journal of Agriculture,* Wellington, 1937, Vol 55, No 1, pp. 32-41, figs. 1-5.

Tischler, W. Zur Biologie des stumpfschwarzen Getreideschimmelkäfers (*Alphitobius ovatus* Hrbst.) *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem,* Berlin-Dahlem 1937, Bd 4, Nr 2, S. 105-109, Fig 1-5.

Tompkins, C M. A transmissible mosaic disease of cauliflower. *Journal of Agricultural Research,* Washington, D C, 1937, Vol 55, No 1, pp. 33-46, figs 1-5 Literature cited, pp. 45-46

Trotter, Alessandro La coltura e la difesa del nocciuolo in montagna *L'Italia Agricola,* Roma, 1937, anno 74, n 7, pp. 495-501, 6 figg

Trujillo Peluffo, A[gustín] El "pulgón" verde de las gramíneas Un nuevo enemigo de nuestros cultivos *Revista de la Asociación Rural del Uruguay,* Montevideo, 1937, año LXIV, núm 6, págs 23 a 27
[*Toxoptera graminum*]

Trujillo Peluffo, Agustín El pulgon verde de los cereales (*Toxoptera graminum* Rond) *La Propaganda Rural,* Montevideo, 1937, año XXXVI, n.º 810, págs 11 y 12, figs. 1-2

Tseng, Shen, and Ho, Chun Some insects injurious to pear-trees *Lingnan Science Journal,* Canton, China, 1937, Vol 16, No. 2, pp 249-259, No 3, pp. 457-462, pls 5-7. References, pp 461-462
[*Calyptotrypus hibinonis, Urochela luteovaria, Rhynchites heros*]

Uichanco, Leopoldo B, and Gines, Romulo B. A biometrical study of the adult components of Philippine locust swarms *The Philippine Agriculturist,* Laguna, P I, 1937, Vol. XXVI, No 3, pp. 237-262, charts 1-10 Literature cited, pp 261-262
[*Locusta migratoria manilensis*]

Ullstrup, Arnold J. Histological studies on wilt of China aster. *Phytopathology,* Lancaster, Pa, 1937, Vol 27, No 7, pp 737-748, figs 1-5. Literature cited, p 748
[*Fusarium conglutinans* var. *callistephi* on *Callistephus chinensis*].

Uppal, B N., and Kulkarni, N. T. Studies in *Fusarium* wilt of sann-hemp. I. The physiology and biology of *Fusarium vasinfectum* Atk. *The Indian Journal of Agricultural Science,* Delhi, 1937, Vol VII, Pt. III, pp. 413-442, fig. 1. References, pp. 441-442.
[*F. vasinfectum* on *Crotalaria juncea*]

van Emden, Fritz An Indian Cerambycid damaging tea cases. *Bulletin of Entomological Research,* London, 1937, Vol. 28, Pt 2, pp. 321-323, figs. 1-2.
[*Stromatium barbatum*]

VAN POETEREN, N. Faut-il considérer la lutte par les produits chimiques contre les maladies des plantes et les parasites en voie d'extension comme nécessaire? *Royaume des Pays-Bas. Commission Nationale des Industries agricoles des Pays-Bas. V° Congrès international technique et chimique des Industries agricoles. Schéveningue – 1937. Comptes-rendus*, Naarden (Hollande), 1937, vol. I, p. 424-429.

VERONA, O. Chiave analitica delle principali malattie crittogamiche del frumento. *Reale Accademia dei Fisiocritici. Atti della Sezione Agraria*, Siena, 1937, vol. III, fasc. III, anno 1935, pp. 229-237.

v. FRAUENDORFER, S., und SCHAEFER, V. A. Die Schrifttumsnachweise der Landwirtschaftswissenschaft. Internationale Ubersicht über die laufenden Bibliographien und Referatblätter auf dem Gesamtgebiet der Landwirtschaft und den verwandten Gebieten. Zuzammengestellt in der Bibliothek des Internationalen Landwirtschaftsinstituts in Rom. *Berichte über Landwirtschaft*, Berlin 1937, Neue Folge, 131. Sonderheft, 43 S. Rm. 4,80.
[Free translation and rearrangement of the publication previously issued in French and English by the International Institute of Agriculture (see this *Bulletin*, 1937, No. 2, p 40).— Titles and summaries of this work are also given in English, French and Spanish·— 'The bibliographies of agriculture. International summary of the current bibliographies and reports in the entire domain of agriculture and allied subjects. Compiled in the Library of the International Institute of Agriculture in Rome'. — 'Aperçu international des bibliographies courantes et des services de documentation analytique concernant l'ensemble de l'agriculture et des sciences connexes, d'après [illegible] documentation de la Bibliothèque de l'Institut international d'Agriculture de Rome'. — 'El material bibliográfico de la agricultura. Una síntesis internacional de las bibliografías y de los extractos, puestos al día, en todo el dominio de la agricultura y esferas afines. Recogida en la Biblioteca del Instituto Internacional de Agricultura de Roma'].

WADLEY, F. M. Observations on some insects associated with sugarcane in Puerto Rico *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R, 1937, Vol. XXI, No. 2, pp. 103-114. Literature cited, p 114.
[*Aphis maidis, Hysteroneura setariae, Sipha flava, Carolinaia cyperi, Saccharosydne saccharivora*, etc.]

WALLACE, G. B. A revised list of plant diseases in Tanganyika Territory. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. II, No 4, pp. 305-310. References, p. 305.

WALLACE, G. B. Notes on the susceptibility of indigenous trees to *Armillaria*. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1937, Vol. III, No. 1, pp. 49-51.
[*Armillaria* sp].

WILLISON, R. S. Peach canker investigations. III Further notes on incidence, contributing factors, and related phenomena. *Canadian Journal of Research*, Ottawa, 1937, Vol. 15, Sec. c, No. 7, pp. 324-339, figs. 1-5. References, p. 339.
[*Sclerotinia fructicola, Valsa cincta, Laspeyresia molesta, Scolytus rugulosus, Synanthedon exitiosa, S. pictipes*].

WORMALD, H. Bacteriosis of stone fruit trees in Britain. VI. Field observations on bacteriosis of sweet cherry trees. *The Journal of Pomology and Horticultural Science*, London, 1937, Vol. XV, No. 1, pp. 35-48, figs. 1-13. References, pp. 47-48.
[*Pseudomonas prunicola* and *Ps. mors-prunorum*].

YAKHONTOV, V. V. The pests of the subtropical cultures in Middle Asia. *Soviet Subtropics*, Moscov, 1937, 1 (29), pp. 68-69, figs 1-4.
[In Russian, with title also in English].

ZANINI, Emilio. Lotta contro la piralide e la leucania del granturco. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 37, pp. 310.
[*Pyrausta nubilalis*, and *Leucania zeae* (*Sesamia cretica*)].

ZILLIG, Hermann. Das Vordringen des bekreuzten Traubenwicklers (*Polychrosis botrana* Schiff.) in den deutschen Weinbaugebieten. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1937, Bd. 4, Nr 2, S. 81-94 Schriften-Verzeichnis, S. 93-94.

ZIMMERMANN, Sara Il metodo delle lastrine di rame per la diagnosi della degenerazione delle patate (Ricerche sperimentali) *Rivista di Patologia Vegetale*, Pavia, 1937, anno XXVII, nn 5-6, pp 161-187, figg 1-11 Bibliografia, pp 186-187

NOTES

VIIth International Entomological Congress. — This Congress will be held at Berlin from 15 to 20 August, 1938

One of the four sections reserved for applied entomology will be devoted to forest entomology, and another to agricultural entomology (grape-vine and fruit trees, field crops and vegetable plants, insects harmful to stored products, insecticides)

All correspondence should be addressed to the Secretary General of the Congress, Prof Dr Hering, Zoological Museum of the University, Invalidenstrasse 43, Berlin, N 4.

IXth International Ornithological Congress. — This Congress will be held at Rouen, France from 9 to 13 May, 1938.

In conformity with the wish expressed by the International Ornithological Committee, it is proposed that questions regarding the protection of birds shall be discussed during the course of the meetings of the International Committee for Bird Protection which will take place at Rouen immediately previous to the opening of the Congress on 6 and 7 May, 1938 The resolutions adopted and proposed will be presented for approval to the Congress at the time of the general concluding meeting

All correspondence relative to the Congress should be addressed to the Secretary, Mr Jean Delacour, Château de Clères, Seine-Inférieure, France.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: The Green Bug, *Toxoptera graminum*. †

Mr. Gustavo J. Fischer, agricultural engineer of the 'Instituto Fitotécnico y Semillero Nacional' of 'La Estanzuela', Uruguay, on 22 May, 1937, remitted to the 'Dirección de Sanidad Vegetal' of the Argentine Republic, a number of aphids which had made their appearance in some oat fields near the afore-mentioned Institute, and which caused the plants to wither in patches, the damage effected being estimated a 1 to 2 per cent. of the area under cultivation.

Mr. Everard E. Blanchard, entomologist of the Division of Agricultural Zoology identified the so called 'pulgón verde' as being *Toxoptera graminum*, Rond., of common and widespread occurrence in Europe and North America, which information was communicated to Mr. Fischer.

On 3 June, 1937, Mr. Juan R. Báez of the 'Servicio de Reconocimiento y Control Sanitario' sent from Paraná, Entre Rios, specimens of the same insect found on oats and wheat cultivated in the proximity of Buenos Aires; consequently the 'Dirección de Sanidad Vegetal' took immediate steps to control this pest, at the same time commissioning Mr. Ramón Bazán, entomologist, to investigate the spread of the insect and the type of damage caused to crops. Up to date, it has only been reported on the banks of the Paraná river from La Paz to Diamante, being recognized and controlled by the farmers.

On 18 June, 1937, Mr. Fischer informed the Director of 'Sanidad Vegetal' of the efficacy of soap solutions in the control of the green bug, advocating the formulae obtained by the 'Fábrica Oficial del Tigre' for the preparation of insecticidal soaps, the effectiveness of which has been extensively tested by the aforesaid 'Dirección' in the control of various aphides of plants since

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* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Agricultural Engineer, Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

1935. Formulae for two soaps were given, one a soft soap with a basis of whale oil and caustic potash and the other a hard soap prepared with tallow, resin and caustic soda, which are adopted in the proportion of 1 ½ and 2 per cent. solutions.

The widespread appearance of the green bug is attributed to many factors and particularly to exceptional climatological conditions, which were characterized by mild temperatures and persistent drought. It is possible that in Uruguay, this phenomenon became accentuated, thus favouring the propagation of the pest.

The damage caused by the green bug is generally occasional and although this pest attacks different cereals and grasses, preference is given to oats. Its action may be checked by natural enemies some of which (*Aphidius pratensis*) have been recently tested on specimens sent from Montevideo by Mr. Agustín Trujillo Peluffo, agricultural engineer of the 'Dirección de Agronomía'.

It may be definitely affirmed that in consequence of the rains and the winter season now beginning, no further damage will occur. This fact is corroborated by information received from Uruguay.

Australia: Notes on Plant Diseases Recorded in New South Wales for the Year Ending 30th June, 1937 *

CEREALS AND FIELD CROPS

Seasonal conditions were not favourable for development of disease in wheat crops. Frost damage, however, was more severe than usual. Purple patch (*Rhizoctonia solani*) was of importance in wheat and oats in some districts. Ergot (*Claviceps paspali*) of paspalum developed extensively in coastal pastures. *Gibberella moniliformis* and *G. fujikuroi* var. *subglutinans* were of major importance as stalk and root rots in maize crops. *Helminthosporium* sp. was associated with a severe root and basal stalk rot of maize in one area. *Colletotrichum* sp. was important as a cause of root and stalk rot of broom millet. Bacterial streak (*Bacterium holcicola*) also resulted in injury, whereas bacterial stripe (*Bact. andropogoni*) was of minor importance in millet crops.

Lucerne crops were again affected with disease, the most important conditions being stem nematode (*Anguillulina dipsaci*) and witches' broom (virus), a further condition, apparently identical with the dwarf disease (virus) was recorded for the first time. A witches' broom condition (undet.) was observed in crops of soybeans.

Early blight (*Alternaria solani*) was of serious importance in some potato crops. Black scurf (*Rhizoctonia solani*) developed extensively; the *Corticium* stage was readily apparent in many crops in cooler districts. Powdery mildew (*Oidium* sp.) was observed in a crop of the potato variety Early Manistee. Leaf roll (virus) was again of importance. Other potato virus diseases included mosaic, witches' broom, tomato spotted wilt and 'paper leaf', a condition apparently of the spindle tuber type.

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* Communication from the official correspondent of the Institute, Dr. R. J. NOBLE, Biologist, Biological Branch, Department of Agriculture, Sydney, New South Wales, Australia.

FRUIT CROPS.

Citrus fruit were severely affected with black spot (*Phoma citricarpa*), Septoria spot (*S. depressa*) was recorded in navel oranges from inland irrigation areas. Black spot of apples (*Venturia inaequalis*) was less serious than usual. Internal cork (boron deficiency) caused extensive losses. Experimental areas responded to borax treatments. Dry seasonal conditions were associated with slight development of disease in summer fruits. Brown rot (*Sclerotinia fructicola*) caused some loss in canning varieties of peaches. Freckle (*Cladosporium carpophilum*) was less serious than usual.

Bunchy top (virus) of bananas was of more importance than in recent years. Leaf spot (*Cercospora musae*) was destructive in banana plantations during the autumn. Cigar end (*Stachylidium theobromae*) was of importance in varieties which did not shed bracts readily. Squirter (*Nigrospora sphaerica*) of bananas caused loss in fruits consigned to cooler areas.

Eritrea: Locusts *

No locusts were reported in the Colony during the month of August, 1937.

Southern Rhodesia: Locust Invasion, 1932-1937 †

Monthly Report No. 57. August, 1937

A few winged swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) have been reported from the north of the Colony during the month of August, 1937, the districts included being Salisbury, Sebungwe, Lomagundi and Umtali. The swarms have all been described as 'large'.

No damage to crops has been reported.

Italian Somaliland: Locusts §

During the month of July, 1937, no locusts were observed in the Colony.

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* Communication from Dr. LUIGI M. BOLOGNA, Acting Chief of the Bureau of Agriculture of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

† Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F.E.S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

§ Communication from Dr. FERRANTI PAVERI-FONTANA, Acting Chief of the Agricultural Bureau of Italian Somaliland, Mogadiscio, transmitted to the Institute by the Government of the Colony.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Chile. — By Decree No. 95 of 21 January, 1937, aeroplanes of the Pan American Airways, Inc., travelling from Arica to Santiago, are permitted to take supplies of fruit obtained in Arica for passenger' consumption, always on the condition that the said fruits were inspected by the 'Inspección del Servicio de Sanidad Vegetal' in Arica, which shall grant a certificate authorizing departure.

The quantity of fruit which may be transported by the planes shall be only that strictly necessary for passenger consumption. In the case of excess fruit, the surplus shall be confiscated on arrival of the planes at Santiago by an inspector of the 'Servicio de Sanidad Vegetal'. (*Boletín del Ministerio de Agricultura*, Santiago de Chile, enero-febrero-marzo, 1937, año IV, nº 11, págs. 203 y 204).

⁂ By Decree No. 96 of the same date, the South American Fruit Company is authorized to ship bananas through the port of Caldera, on the condition that the said fruit is accompanied by a corresponding certificate issued by the 'Sanidad Vegetal' of the country of origin, testifying that the fruit originated in a zone free from fruit fly [*Anastrepha* sp] and that the said Company guarantees all expenses incurred in the inspection of the fruit at the port of Caldera by an official of the 'Servicio de Sanidad Vegetal' de Copiapó. (*Ibid.*, pág. 204).

Colombia. — According to a Circular (undated) of the Ministry of Agriculture and Commerce, Department of Agriculture, Section of 'Sanidad Vegetal', any person desirous of introducing into Colombia material for plant propagation (seeds, slips, cuttings, branches, fruits, roots, shoots, tubers, bulbs, rhizomes, stocks, etc.) is required to make a preliminary request to the aforesaid Ministry on stamped paper on each occasion in order to obtain the necessary permit for import.

The material for plant propagation should be accompanied by a certificate of plant health issued by a Government phytopathologist and entomologist of the country of origin, or by official organizations or bodies, testifying to the sanitary condition of the product, and that it is exempt from diseases and pests. These certificates shall be vised by the respective consular officer in Colombia, or by an officer of a consulate of a friendly nation, if the country of origin has no agent in Colombia, except in the case when the dispatch firm has obtained permission from the Ministry of Agriculture and Commerce.

The importer is obliged to present at the custom-house, or in the post-office, or at the respective air-port, besides the certificate of plant health, the preliminary permit granted by the Ministry in order to verify the import. At these establishments, the imported product will be subjected to a strict inspection by the 'Sanidad Vegetal'. (*Boletín Agrícola*, Medellín, Colombia, 1937, nº. 227, pág. 930).

Ecuador. — By Decree No. 120 of 1 July, 1937, full approval is given to the phytosanitary 'Acuerdo' signed at Guayaquil on 9 January, 1937, by the official delegations of Ecuador and Chile, 'Acuerdo' which supplemmented Art. IX of the Commercial Agreement between the two countries, in force since 7 April, 1936. (*Registro Oficial*, Quito, 6 de julio de 1937, año II, núm. 532, pág. 1310).

⁂ The text of the above-mentioned Ecuador-Chilian phytosanitary 'Acuerdo', previously approved by the Government of Chile, is as follows:—

(1) The import of oranges from Ecuador to Chile shall remain subject to the following regulations:—

(*a*) The oranges of the variety called national and nominated 'añera' which ripen during the months of September to December inclusive shall be accepted in any part of Chile. During the remainder of the year, the oranges grown as far as Taltal may be imported.

(*b*) In the orchards where these fruits are produced all fruits fallen on the ground should be removed twice a week, whether they are oranges or fruits of any other species planted with the orange trees up to a distance of 500 metres from the orange grove. The mango (*Mangifera indica*), guava (*Psidium guayava*), custard apple (*Anona squamosa*) and other fruit trees attacked by the fruit fly (*Anastrepha* sp.), should be sprayed twice a month, during the months from August to December inclusive in order to destroy the adult flies. The ground at the foot of the aforesaid trees should also be kept cleared.

(*c*) The general requirements of sanitary certification necessary for any plant product, must be complied with, and 'standard' packing must be adopted.

(*d*) On arrival at Chile, consignments shall be inspected by the 'Servicio de Sanidad Vegetal', which shall confiscate any consignment containing larvae of the fruit fly, or any other species.

(*e*) The health certificate of the Ecuador authorities shall comply with the preceding conditions.

(2) Avocados (*Persea gratissima*) may be imported from Ecuador into any part of the Chilian territory on the condition that —

(*a*) At the time of shipment, the fruits was in a proper ripe state.

(*b*) In the region where produced, avocado anthracnosa (*Physalospora perseae*) does not exist, or in a region where the cankers produced by this fungus on the trees have been practically eliminated and where a systematic control is being continued. The fruits should be free from the lesions caused by the said fungus and not contain caterpillars.

(*c*) The certificate issued by the health authorities of Ecuador, shall comply with the preceding conditions.

(3) The Ecuador delegation accepts the condition that for import into Chile, alfalfa seed shall not contain a quantity of dodder [*Cuscuta*] exceeding ten grains or seeds of this parasite per kg. of alfalfa seed, which statement must appear on the respective sanitary certificate.

(4) Both delegations are in agreement that agricultural progress cannot be advanced unless the countries have at their disposal well organized Plant Protection Services, furnished with specialized experts and the requisite material to execute the respective studies. The system of organization should comprise —

(*a*) Inspection at the ports in order to prevent the arrival of new plant diseases and pests from abroad and comply with the sanitary requirements of the countries receiving plant products.

(*b*) District inspection in order to control diseases existing in the territory

(c) Laboratories of Plant Pathology, Agricultural Entomology and experimental fields for the study of parasites and their control

(d) Professorships of Plant Pathology and Agricultural Entomology at least in one University, for the training of corresponding experts

The Governments of the two countries shall come to a reciprocal agreement as to the method of carrying out the above-said recommendations.

(5) Each country must draw up, within the shortest possible time, a complete list of plants serving as hosts to pests found in agriculture and a map of its distribution in the country

(6) In every regulation, both the disease or pest and the plant attacked should be designated by both the common and scientific name

(7) Each country shall draw up, as soon as possible, a regulation regarding the requirements to which phytoterapeutic products should comply for use in agriculture, and to establish or nominate an organization which shall carry out the said regulation

(8) Any request tending to the modification of a phytosanitary regulation should be presented with complete scientific documentation and expound the reasons for necessitating this modification

(9) Both Governments guarantee to take the necessary measures for preventing the export of products from infected regions as originating in healthy or treated zones

(10) Add to Art II of the Commercial Agreement: — ' and the necessary apparatus for its application '

(11) Any measure whatsoever of a phytosanitary regulation character taken in one of the two countries shall be duly communicated to the other

(12) The consular endorsement of sanitary certificates for samples or consignments having a value inferior to twenty ' sucres ' or five hundred Chilian ' pesos ', shall be free of charge (*Ibid*, págs 1311 y 1312)

United States of America. — By Notice of Quarantine No. 48 (twelfth revision) on account of the Japanese beetle (*Popillia japonica*) have been quarantined the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia, and the District of Columbia, effective on and after 1 March, 1937.

Hereafter fruits and vegetables, nursery, ornamental, and green house stock, and other plants, and sand, soil, earth, peat, compost, and manure shall not be shipped, offered for shipment to a common carrier, received for transportation or transported by a common carrier, or carried, transported, moved or allowed to be moved from any of said quarantined States or District into or through any other State or territory or district of the United States in manner or method or under conditions other than those prescribed in the rules and regulations (fifteenth revision) supplemental to said Notice of Quarantine. (*B. E. P. Q. — Q. 48*, [Washington], 1937, 14 pp., 1 map).

⁂ Amendment No. 2 to revised rules and regulations supplemental to Notice of Quarantine No. 52, on account of the pink bollworm of cotton [*Pectinophora* (*Platyedra*) *gossypiella*], adds the county of Sierra in New Mexico and the Texas counties of Crane, Loving, Upton, and Winkler to the lightly infested areas. While stock raising is the principal industry in these counties, a small amount of cotton is grown. This is carried into the present adjacent regulated areas for ginning. These counties are, therefore, included to authorize the movement of seed to farms and ranches therein for planting and feeding purposes.

This amendment of regulation 3 was approved on 5 April, 1937 and became effective on and after 6 April of the same year. (*B. E. P. Q.* — *Q. 52* [Washington], 1937, 2 pp.).

France. — By Decree of 18 June, 1937, the system of temporary admission duty free is extended to petroleum oils, products derived from petroleum and residues intended for the preparation of insecticides or fungicides intended for export. (*Journal officiel de la République française*, Paris, 22 juin 1937, LXIX^e année, n° 143, p. 6953).

⁂ By Ministerial Decree of 22 July, 1937, State assistance in the form of subsidies, may only be given to syndicates or federations of syndicates for the control of plant diseases and pests, established in conformity with the Laws of 25 February, 1927 and 3 June, 1927 [see this *Bulletin*, 1927, No. 8, pp. 130-131] the statutes of which have been approved by the Minister of Agriculture and the presidents of which have agreed to comply with the official instructions by signing the declaration annexed to this Ministerial Decree.

These subsidies may only be granted for the following purposes:—

(1) To facilitate the operation of a recently established association (initial subsidy).

(2) To assist towards the purchase of apparatus for collective use (subsidy for purposes of purchase).

(3) To contribute towards the expenses incurred in the control of certain plant pests when control measures are undertaken under the conditions determined by Law of 3 June, 1927.

In no instance whatsoever shall subsidies be granted to more than two communal syndicates in the same commune, two cantonal associations in the same canton, two district associations in the same district, two departmental associations in the same department. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements agricoles*, Paris, 1er septembre 1937, année 1937, n^{os} 16-17, p. 370-371).

India. — By Notification No. F. 116-34-A., dated the 8 April, 1937, it is notified for general information that no charge will be made for the consignments of plants intended for export to countries abroad, which are sent to the Government Fruit Farm, Mirpurkhas, for inspection and certification provided that all incidental charges are borne by the exporters. Consignments may also be made available for inspection and certification work at Karachi. The Chief Agricultural Officer in Sind is authorised to charge a fee of Rs. 20 for each such consignment. (*Agriculture and Live-stock in India*, Delhi, July, 1937, Vol. VII, Pt. IV, p. 545).

Italy. — The Royal Decree-Law No. 1568 of 8 July, 1937, regulates the preparation of and the trade in sugar-beet seed, also from the phytosanitary aspect. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 18 settembre 1937, anno 78°, n. 218, pp. 3495-3496).

⁂ The Royal Decree No. 1579 of 8 July, 1937, determines the modalities of application of the Royal Decree-Law No. 642 of 15 April, 1937 [see this *Bulletin*, 1937, No. 7, p. 156] relative to the control of citrus scale insects. *Ibid.*, Roma, 21 settembre 1937, n. 220, pp. 3511-3512).

⁂ By Decree of the Minister of Finance, dated 16 September, 1937, the aplication of the exchange duty at the reduced rate of 0.50 lire per cent. is extended from 1 October, 1937, to the parasiticides placed on sale under the following denominations:— 'Verderin', 'Fluoris', 'Cruscolina', 'Abruchite', 'Baflor', 'Nicol', 'Nicosan', 'Anticuscuta', sodium arsenite, 'Ferfor', and 'Azurol' (*Ibid.*, 14 ottobre 1937, n. 240, p. 3800).

Switzerland. — A Decree of the Federal Council, dated 5 June, 1937, establishes the following measures: —

Art. 1 — All consignments of fresh stone and pomaceous fruits, (customs tariff, Nos. 23, 24, *a* and *b*), trees, shrubs, and other living plants, not in tubs or pots (customs tariff, Nos. 209 and 210), parts of plants such as cuttings, seedlings, layers, etc (customs tariff ex No. 220) originating in the countries designated in Article 3 must be accompanied by a certificate issued by the Phytopathological Service of the country of origin. This certificate drawn up or translated into German, French or Italian testifies that the consignment is free from the San José scale [*Aspidiotus perniciosus*] and other parasites and diseases.

The certificates which accompany the consignments of trees, shrubs, other living plants or parts of plants should also testify that the said consignment has been subjected, in the country of origin, to an efficacious treatment by means of hydrocyanic acid gas, provided with stamped seal in order to prevent these plants being substituted by others not disinfected. The impression of the seal shall be reproduced on the required certificate.

Art. 2 — In respect of all the merchandise listed in Art. 1, the frontier control authorities shall determine whether the consignment is free from the San José scale, other parasites or diseases. Entry is only authorized if the consignment is found to be in a healthy condition. Infected goods shall be refused.

The Division of Agriculture may authorize exceptions to this rule and order disinfection to be carried out at the expense of the holder of the goods.

Art. 3. — The dispositions of this Decree are applicable to consignments originating in the following countries:—

Europe: Austria, Portugal, Rumania, Russia, Spain, Hungary, and Yugoslavia.

Africa: Union of South Africa.

America: All the countries of this Continent.

Asia: China, Irak and Japan.

Oceania: The Australian Continent, the Hawaiian Islands and New Zealand.

If circumstances demand, the Department of Public Economy may modify the above list.

Art. 4. — The customs offices of Basle, Buchs, Romanshorn, St. Margrethen, Zurich, the free port of Albisrieden, Chiasso, Domodossola, Brigue, Berne, Neuchâtel, Lausanne-Entrepôt, and Geneva allow free entry to the consignments listed in Article 1.

In agreement with the customs authorities, the Division of Agriculture may open further offices for these imports.

Art. 5. — To cover inspection expenses a tax shall be collected on behalf of the Division of Agriculture.

The unloading of the goods for inspection purposes, reloading the bales, opening and repacking of the cases, as well as the assistance required by the expert in carrying out his examination, devolve on the holder of the goods.

Also subject to the tax are consignments entering in transit, but not conveyed directly through Switzerland. When it is established that the merchandise shall be re-exported, the Administration may re-imbourse on the request of the importer, the surplus of the tax paid, after deduction of the expenses incurred for inspection.

Art. 6. — The experts in charge of the inspection of the goods shall be nominated by the Department of Public Economy which shall also determine their duties.

Art. 7. — The above-mentioned dispositions, until further order, are not applicable to fruits, trees, shrubs, other living plants and parts of plants imported in county trading and the small scale commerce of the frontier The Department of Public Economy is, however, authorized to declare these dispositions applicable if circumstances so indicate. In agreement with the customs authorities, the Division of Agriculture shall draw up the necessary dispositions in respect of this trade.

Art. 8. — With the exception of Article 1, paragraph 1, the present Decree comes into force on 1 July, 1937. This abrogates the Decree of the Federal Council of 28 April, 1928, relative to the import of fresh fruit of American and Australian origin, and that of 25 October, 1932, relative to the import of fresh fruits, trees, shrubs and other living plants originating from Austria and Hungary.

Article 1, paragraph 1, relative to the certificates which accompany the consignments, comes into force on 1 September, 1937. (*Recueil des Lois fédérales*, Berne, 9 juin 1937, n° 22, p. 610-612).

Venezuela. — The presence of the cacao witches' broom disease (*Marasmius perniciosus*) having been verified in Sucre State and Federal Territory Delta Amacuro, by Resolution No. 6 of 15 June, 1937, four officers of the Ministry of Agriculture and Animal Husbandry are charged to supervise the measures necessary for the effective control of the said disease and preventing it from spreading to non-infected zones. (*Aviso oficial. Campaña contra la enfermedad del cacao denominada " escoba de bruja "*, Caracas, 1937, 1 pág.).

⁂ By Resolution No. 7 of the same date for preventing the spread of the aforesaid disease in the country, transport is prohibited from Sucre State and Federal Territory Delta Amacuro to other regions of Venezuela of any plant, part of plants, cacao pods and beans, earth, used sacks and also packing cases which have been utilized for cacao unless accompanied by a special certificate from the Ministry of Agriculture and Animal Husbandry, testifying that they do not originate in infected zones.

Ships which have transported cacao coming from zones declared infected, before leaving for other regions of the country shall be subjected to an effective disinfection treatment which will be carried out under the supervision of an agent designated for this purpose by the above-mentioned Ministry. (*Ibid.*).

⁂ By Resolution No. 8 of the same date and for the same purpose as Resolution No. 7, it is prohibited:—

(*a*) to introduce into the country any plant, fruit, seed or part of the cacao plant, whatever its origin;

(*b*) to bring into the country. (1) any used sack, also if employed for wrapping other products; (2) any packing case or packing material which has been previously utilized in cacao estates or for containing cacao;

(*c*) to introduce soil, irrespective of its place of origin.

Exception is made in respect of the imports effected by the Ministry for research work, and subjected to the requisite precautionary measures. (*Ibid.*).

RECENT BIBLIOGRAPHY

ACZÉL, Márton. A burgonyabogárveszedelem egyre nö. *Novényvédelem*, Budapest 1937, XIII. évf., 9. sz., 169-173 o, 9 képpel.
[Translation of the Hungarian title.– ' Le danger du doryphore augmente toujours plus '. — *Leptinotarsa decemlineata*].

AINSWORTH, G. C. " Enation mosaic " of tomato caused by a virus of the *tobacco virus* 1 type. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 3, pp. 545-556, fig. 1, pls. XXXIV-XXXV. References, p. 555.

ANDREWS, F. W. Investigations on black-arm disease of cotton under field conditions. II. The effect of flooding infective cotton debris. *The Empire Journal of Experimental Agriculture*, London, 1937, Vol. 7, No. 19, pp. 204-218, figs. 1-4. References, p. 218.
[*Bacterium malvacearum*].

ASKEW, H. O., THOMSON, R. H. K., and KIDSON, G. B. The boron status of New Zealand fruit soils. *The New Zealand Journal of Science and Technology*, Wellington, N. Z., 1937, Vol. XVIII, No. 11, pp. 789-796.
[Internal cork of apples develops on soils of low boron content].

Atkinson, J. D. Injection of apple-trees in New Zealand. *The New Zealand Journal of Science and Technology,* Wellington, N. Z., 1937, Vol. XVIII, No. 11, pp. 797-799. References, p. 799.

Audant, André, and **Occénad**, Albert. The Mexican cotton boll weevil, *Anthonomus grandis* Boheman, in Haiti. *The Journal of Agriculture of the University of Puerto Rico,* Río Piedras, P. R., 1937, Vol. XXI, No. 1, pp. 69-76, 2 graphs, 1 map.

Azevedo, Nearch. Relaçâo bibliographica referente a fungos e doenças do cafeeiro. *Rodriguésia,* Rio de Janeiro, 1936, anno II, numero especial, pags. 213-238. [Translation of the introduction to this paper also in English].

Barbieri, Nicola Alberto. Action antiparasitaire universelle du Tabacol. *Bulletin mensuel de la Société nationale d'Horticulture de France,* Paris, 1937, 6e sér., tome IV, [no 8], p. 333-335.

Barbieri, Nicola Alberto. Une larve apode méconnue vide, par périodes, les nodosités des Légumineuses. *Bulletin mensuel de la Société nationale d'Horticulture de France,* Paris, 1937, 6e sér., tome IV, [no 8], p. 335-337 [An unknown fly].

Barnes, H. F. The asparagus miner (*Melanagromyza simplex* H Loew) (Agromyzidae, Diptera). *The Annals of Applied Biology,* London, 1937, Vol XXIV, No. 3, pp 574-588, fig 1, pls. XXXVI-XXXVII. References, pp 587-588.

Barnes, H F. The hollyhock seed moth (*Platyedra malvella* Hübn), together with notes on the distribution of *Apion radiolus* Kirby and an associated *Clinodiplosis* species. *The Annals of Applied Biology,* London, 1937, Vol. XXIV, No 3, pp. 589-599, fig. 1, pl. XXXVIII. References, p. 599.

Barss, H. P The variable properties of potato as a bacteriological culture medium. *Phytopathology,* Lancaster, Pa., 1937, Vol 27, No. 8, p. 865.

Benatar, Rubens. Contribuição ao estudo bibliographico de doenças da roseira. *Rodriguésia,* Rio de Janeiro, 1936, anno II, numero especial, pags. 239-264.

Benincasa, M Il campo di allevamento di razze di « Virginia Bright » in Città di Castello. *Bollettino Tecnico del R. Istituto Sperimentale per le Coltivazioni dei Tabacchi « Leonardo Angeloni »,* Scafati, 1937, anno XXXIV, n 1, pp 16-50, 15 tav.
[With title and summary also in English — 'Virginia Bright tobacco breeding in Città di Castello' — *Inter alia,* the resistance percentage of the different varieties of Virginia Bright tobacco to *Thielavia basicola* is indicated].

Bitancourt, Agesilau A. A defesa sanitaria vegetal e sua organisação em alguns dos principaes paizes do mundo *Rodriguésia,* Rio de Janeiro 1936, anno II, numero especial, pags. 151-161, fig. 1. Bibliographia, pags. 160-161

Bitancourt, A[gesilau] A., e **Jenkins**, Anna E. Variações de *Elsinoe australis* Bitancourt e Jenkins. *Rodriguésia,* Rio de Janeiro, 1936, anno II, numero especial, pags. 315-317, fig. 1.

Bondar, Gregorio. A Phytopathologia e a cultura cacaoeira no Brasil. *Rodriguésia,* Rio de Janeiro, 1936, anno II, numero especial, pags. 197-198.

Brenchley, Winifred E., and **Watson**, D. J. The influence of boron on the second year's growth of sugar beet affected with heart-rot. *The Annals of Applied Biology,* London, 1937, Vol. XXIV, No. 3, pp. 494-503, pls. XXXI-XXXII.

Briganti, Gregorio. Il marciume radicale. Cause predisponenti ed aggravanti. Mezzi di lotta preventivi e curativi. *L'Italia Agricola,* Roma, 1937, anno 74, n. 9, pp. 669-674, figg. 1-6.

Brown, M. R. A study of crown rust, *Puccinia coronata* Corda, in Great Britain. I. Physiologic specialization in the uredospore stage. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 3, pp. 504-527 References, pp. 526-527.

Bruck, Eugenio. Interdicções e quarentenas de importações vegetaes. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 167-177.

Bubentzov, S. The isolation of Ustilago tritici (Pers.) Rostr. from infected wheat seeds. *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 89-94. [Literature], p. 93

[In Russian, with title and summary also in English]

Buchheim, A Modern methods of controlling rust in grain crops. *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 11-33, figs. 1-2. [Literature], pp. 30-33.

[In Russian, with title also in English — *Uredales*]

Caminha Filho, Adrião Doenças da canna de assucar no Brasil *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 191-196

Canonaco, A Una malattia del Tropaeolum majus L. dovuta ad un Ifale del genere « Oidiopsis » Scal *Lavori del R Istituto Botanico di Palermo*, Palermo, 1937, vol VIII, pp. 31-48, fig 1, tav IV Bibliografia, p. 48.

[*Oidiopsis sicula*].

Cappelletti, Carlo Osservazioni sulla germinazione dei semi di *Orobanche gracilis* Sm e *Orobanche crenata* Forsk (Nota 2ª) *Nuovo Giornale Botanico Italiano* (Nuova serie), Firenze, 1937, vol XLIV, n 2, pp 331-334

Carneiro, João Gonçalves Nomenclatura phytopathologica e mycologica no Brasil *Rodriguésia*, Rio de Janeiro, 1936, numero especial, pags. 339-340

Chaudhuri, H, Kapur, V S, Bhatia, K. L, and Anand, J S. Diseases of the tea bush in the Kangra Valley, Punjab, I *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol VII, Pt IV, pp 565-573, pls. XLIX-L,

[*Pestalozzia theae, Phoma theicola, Colletotrichum camelliae, Guignardia camelliae, Botryodiplodia theobromae, Hendersonia theicola, Cephaleuros mycoidea*]

Chester, Frederick D A bacterial disease of delphinium *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No. 8, pp 855-858, fig 1.

[*Erwinia phytophthora* on *Delphinium ajacis*].

Chiesa Molinari, O Ensayos sobre "trampas baño" o "trampas cebo" verificados en la Estación Experimental de Alto de Sierra *Boletín de Agricultura*, Cordoba, 1937, año XVIII, nº 159, págs 18 a 25, 5 figs

[Against *Cydia pomonella*]

Chowdhury, S Germination of fungal spores in relation to atmospheric humidity. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol VII, Pt. IV, pp 653-657. References, p 657

[*Acrothecium penniseti, Alternaria brassicae, Helminthosporium frumentacei, Cladosporium herbarum, Colletotrichum falcatum, Coll. lindemuthianum, Gloeosporium tabernaemontanae, Phyllosticta cajani*]

Christensen, Jorge R Toxoptera graminum Rondani "El pulgón verde de los cereales". *Agronomia*, Buenos Aires, 1937, año XXX, nº 155, págs. 38 a 49, 1 fig

Ciccarone, A. Una virosi del pomodoro (Nota preliminare). *Rivista di Patologia Vegetale*, Pavia, 1937, anno XXVII, nn 3-4, pp. 73-77, 1 fig. Lavori consultati, p. 77.

[A paper dealing with the disease known as 'fern-leaf' also studied in Italy by R. Gigante (See this *Bulletin*, 1937, No. 8, p. 186)].

COOK, Melville T. The organism causing the dry top rot of sugar cane. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R., 1937, Vol. XXI, No. 1, pp. 85-97, pls V-VII. Literature cited, pp. 95-96. [The writer is of the opinion that the said organism should be kept in the genus *Ligniera* or that there should be a merging of genera as suggested by Palm and Burk in which it would become *Sorosphaera vascularum*]

CORBETT, G. H., YUSOPE, Mohamed, and HASSAN, Abu Insects associated with copra in Malaya. *Department of Agriculture, Straits Settlements and Federated Malay States. Scientific Series, No. 20*, Kuala Lumpur, 1937, pp 1-91, pls I-IX. Bibliography, pp 90-91.

COTTON, R. T., and GOOD, N. G. Annotated list of the insects and mites associated with stored grain and cereal products, and of their arthropod parasites and predators. *United States Department of Agriculture. Miscellaneous Publication No. 258*, Washington, D. C., 1937, 81 pp. Literature cited, pp. 63-74.

CRISTINZIO, M. Esperienze intorno alla capacità infettiva della *Rhizoctonia Solani* Kukn a mezzo di tuberi di patata infetti R. Osservatorio regionale di Fitopatologia di Portici (Napoli). Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R Università di Napoli. *Ricerche, osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno.* Portici, 1937, VI, pp. 71-94, figg. 1-2, tav II-III Bibliografia, pp. 93-94.

CRISTINZIO, M. Un grave attacco di mosaico nella zucca. R. Osservatorio regionale di Fitopatologia di Portici (Napoli) Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R Università di Napoli. *Ricerche, osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno.* Portici, 1937, VI, pp 95-102, tav. IV-V Bibliografia, p 102.

CROSIER, W F, PATRIK, S R, and MUNN, M T Abnormal germination resulting from improperly galvanized trays *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No 8, pp. 867-868, fig 1

DESLANDES, Josué. Os levantamentos phyto-sanitarios sob o ponto de vista da applicação *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 163-166

DESLANDES, Josué. Doenças da bananeira. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 190-206

DOWSON, W J. *Bacterium salicis* Day, the cause of the watermark disease of the cricket-bat willow *The Annals of the Applied Biology*, London, 1937, Vol. XXIV, No 3, pp 528-544, pl. XXXIII References, p 544

DRUMMOND, Octavio A. Notas sobre o combate á septoriose do tomateiro *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 333-336 [*Septoria lycopersici*].

ELIESCU, Gr. Lithocolletis populifoliella Fr Un fluture vătămător frunzelor de plop. *Revista Pădurilor*, București 1937, an. XLIX, nr. 4, pag 397-401, 8 fig. Literatură, pag. 401.
[In Rumanian, with title and summary in German — 'Lithocolletis populifoliella Tr., eine für das Buchenblattwerk schädliche Schmetterlingsart (p 401). — On the second page of the cover of this issue of the Review the title of the article in question is translated into French and German as follows — 'Lithocolletis populifoliella Tr. Un papillon préjudiciable aux feuilles des peupliers '. — 'Lithocolletis populifoliella Tr. Ein für das Pappelblattwerk schädliche Schmetterlingsart ']

ELIESCU, Gr. Laspeyresia strobilella L. Un fluture vătămător conurilor de molid. *Revista Pădurilor*, București 1937, an XLIX, nr. 5, pag. 556-558, 8 fig

Elliott, Charlotte, Melchers, L. E., Lefebvre, C. L., and Wagner, F. A. Pythium root rot of milo. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 54, No. 11, pp. 797-834, figs. 1-22. Literature cited, pp. 833-834. [*Pythium arrhenomanes* on *Sorghum vulgare*].

Evans, J. W. Notes on fruit flies and some other insect pests at present unestablished in Tasmania *The Tasmanian Journal of Agriculture*, Hobart, 1937, Vol. VIII (New Series), No. 2, pp. 57-60. References, p. 60.
[*Ceratitis capitata, Dacus ferrugineus, Cydia molesta, Pieris rapae, Halotydeus destructor*]

Evans, J W. The light-brown apple moth (*Tortrix postvittana*, Walk.). *The Tasmanian Journal of Agriculture*, Hobart, 1937, Vol. VIII (New Series), No. 3, pp. 125-128, figs. I-III.

Evans, J W. The light-brown apple moth (*Tortrix postvittana* Walker). *Supplement to the Tasmanian Journal of Agriculture*, Tasmania, 1937, Vol. VIII, No 3, pp. 1-18, figs. 1-6. References, p 18

Ezerskaja, E. Chloropicrine as a disinfectant of soil in hot-beds *Plant Protection*, Leningrad, 1937, Fasc. 12, pp 113-120. [Literature], p 120.
[In Russian, with title also in English]

Fagundes, Nestor B, e Rego, Constantino do Valle. Suggestões referentes ás modificações a serem feitas na actual tarifa aduaneira, e relativas a importação de fungicidas, insecticidas e pulverizadores *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 179-183.

Fajardo, T. G. The tomato leafmold (*Cladosporium fulvum* Cke), a new serious disease of tomato in Baguio, Mountain Province *The Philippine Journal of Agriculture*, Manila, 1937, Vol 8, No 2, pp 163-186, pls 1-12 Literature, pp. 182-183

Fedorintchik, N The influence of some fungicides on the spores of Plasmodiophora brassicae. *Plant Protection*, Leningrad, 1937, Fasc 12, pp 176-178.
In Russian, with title also in English]

Feytaud, J[ean] La question doryphorique au début de la campagne 1937. *Revue de Zoologie agricole et appliquée*, Bordeaux, 1937, 36^{e} année, n^{o} 4, p. 49-64, fig. 9.
[*Leptinotarsa decemlineata*]

Feytaud, J[ean]. Escargots et limaces. *Revue de Zoologie agricole et appliquée*, Bordeaux, 1937, 36^{e} année, n^{o} 5, p 65-80, fig. 10-12. Bibliographie, p. 80.
Helix, Limax, Agriolimax, Milax, Arion].

Fischer, G. J La lucha contra las royas. *Agronomia*, Buenos Aires, 1937, año XXX, n.º 155, págs. 3 a 8, 4 figs. [Bibliografía], págs. 7 y 8.
[*Puccinia*]

Fisher, Ronald C Studies of the biology of the death-watch beetle, *Xestobium rufovillosum* De G. I A summary of past work and a brief account of the developmental stages *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 3, pp. 600-613, figs. 1-5 References, pp. 612-613.

Fleischmann, Rudolf Beobachtungen über das Welken der Linsen. *Pflanzenbau*, Leipzig 1937, 14. Jahrg, Heft 2, S. 49-56, Abb. 1-3.
[*Fusarium* ?]

Fleming, Walter E, Baker, Francis E., and Koblitsky, Louis. Effect of applying acid lead arsenate for control of Japanese beetle larvae on the germination and development of overgreen seedlings. *Journal of Forestry*, Washington, D. C., 1937, Vol 35, No 7, pp. 679-688, figs. 1-2.
[*Popillia japonica*].

FOSTER, H. H. Studies of the pathogenicity of Physalospora obtusa *Phytopathology*, Lancaster, Pa., 1937, Vol 27, No. 8, pp. 803-823, figs 1-7 Literature cited, p. 822-823.

FRANCKE-GROSMANN, Helene Oekologie und Schadwirkung von Dreyfusia Prelli Grosmann. *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47 Jahrg, Heft 10, S 497-516, Taf. 1-2 Literaturverzeichnis, S 515-516.

FRAPPA, C. Les principaux insectes nuisibles aux cultures de Madagascar *Revue de Botanique appliquée et d'Agriculture tropicale*, Paris, 1937, 17e année, nº 191, p. 513-516

FRICKHINGER, H. W In Ausbreitung begriffene Schädlingsplagen. *Forstwissenschaftliches Centralblatt*, Berlin 1937, 59 Jahrg, Heft 18, S. 592-594.

FRIEDRICHSON, G The wheat rust in the Trans-Volga irrigated districts *Plant Protection*, Leningrad, 1937, Fasc 12, pp 35-50 [Literature], pp. 49-50 [In Russian, with title also in English. — *Puccinia*]

FRITZ, Friedrich. Beiträge zur Pathologie der Zellmembran *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47 Jahrg, Heft 10, S 532-541, Abb 1-9 Literatur, S 536-537 und 541

GALANG, F G, and **LAZO**, Felix D The setting of Carabao mango fruits as affected by certain sprays *The Philippine Journal of Agriculture*, Manila, 1937, Vol 8, No 2, pp 187-211, figs 1-2, charts 1-2 Literature cited, p 210

GARRETT, S D. The soil-borne fungus diseases of field and plantation crops a review of existing control methods *The Empire Journal of Experimental Agriculture* London, 1937, Vol V, No 19, pp 189-196 References, p 196

GEORGI, C D V The toxic content of haiari or cubé root *The Malayan Agricultural Journal*, Kuala Lumpur, 1937, Vol XXV, No 8, pp 334-337 References, p. 337 [*Lonchocarpus chrysophyllus, L martynii*]

GHOSE, T P [and] **KRISHNA**, S Occurrence of rotenone in *Milletia pachycarpa* *Current Science*, Bangalore, 1937, Vol VI, No 2, p 57

GOBBATO, Celeste. Principaes pragas e molestias das vides cultivadas no Rio Grande do Sul *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 187-190

GONÇALVES, Cincinnato Rory Considerações sobre a transmissão de doenças das plantas pelos insectos *Rodriguesia*, Rio de Janeiro, 1936, anno II, numero especial, pags 121-129, figs 1-2 Bibliographia, pags 128-129

GRANDORI, Remo Contro la tignola orientale del pesco (*Cydia molesta*) Consigli ai frutticultori mantovani *Bollettino di Zoologia agraria e Bachicoltura*, Torino, 1937, vol VII [1936], pp 171-188, figg 1-9.

GRANDORI, Remo, **PROVASOLI**, Luigi, **MARIANI** Giovanni Rifugi invernali delle larve di *Cydia molesta* e lotta contro di essa mediante l acido cianidrico *Bollettino di Zoologia agraria e Bachicoltura*, Torino, 1937, vol VII (1936), pp. 189-195.

GRILLO, Heitor V. Silveira. Lista preliminar dos fungos assignalados em plantas do Brasil. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 39-96 Bibliographia citada, pag 96

GRILLO, Heitor V. Silveira As necessidades da Phytopathologia no Brasil *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 109-113

GROVE, W B British stem- and leaf-fungi (Coelomycetes) A contribution to our knowledge of the Fungi Imperfecti belonging to the Sphaeropsidales and the Melanconiales Vol. II. Sphaeropsidales comprising Sphaerioideae, with co-

loured spores; Nectrioideae, Excipulaceae, and Leptostromataceae; and Melanconiales. London, Cambridge University Press, 1937, XII + 407 pp., 102 figs. [For the first volume, see this *Bulletin*, 1936, No. 4, p. 88].

HERSCHLER, Albert. Magnesiumsulfat-Kalkbrühe als Träger von Arsenmitteln. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17. Jahrg., Nr. 9, S. 71.

HILDEBRAND, E. M. Infectivity of the fire blight organism. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 8, pp. 850-852. Literature cited, p. 852. [*Erwinia amylovora*].

HOCHAPFEL, H. Stärkeres Auftreten von *Phytomyza rufipes* in Schlesien. *Anzeiger für Schädlingskunde*, Berlin 1937, XIII. Jahrg., Heft 9, S. 114-115, Abb. 1-3. [Literatur], S. 115.

HOFMANN, Christoph. Tannenlaus und Tannensterben. *Forstwissenschaftliches Centralblatt*, Berlin 1937, 59. Jahrg., Heft 15, S. 469-487, Abb 1-5. Schrifttum, S. 486-487. [*Dreyfusia nüsslini*].

HOFMANN, Chr[istoph]. Nonnenfalterkontrolle auf biologischer Grundlage. *Forstwissenschaftliches Centralblatt*, Berlin 1937, 59. Jahrg., Heft 17, S 549-551. Abb. 1. [*Lymantria monacha*].

HOSSLI, Hans. La processionnaire du pin dans les forêts du Tessin *Journal forestier suisse*, Berne, 1937, 8^{me} année, n° 9/10, p. 196-200, 2 pl. [*Cnethocampa pityocampa*]

HSIONG, S. L., and HILDEBRAND, E. M. Maternal inheritance in pears *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No. 8, pp 861-862. [*Erwinia amylovora*].

ISAAKIDÈS, C. A. Liste II des insectes et autres animaux nuisibles aux plantes cultivées et des insectes auxiliaires de la Grèce *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1936, année 2, fasc 1, p 5-7 [Prepared according to the specimens studied at the Benaki Phytopathological Institute during the years 1934 and 1935. – For the first list, see this *Bulletin*, 1936, No. 8, p. 185]

ISAAKIDÈS, C. A L'Eumarchalia (Schizomyia) gennadii (P Marchal) en Crète. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1936, année 2, fasc. 1, p. 17-25, pl. I-II.

ISAAKIDÈS, C. A. La puissance attractive de la mélasse pour la mouche des olives. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1936, année 2, fasc. 1, p. 26-34. [*Dacus oleae*].

IVANOVA, N., and NEMIRITZKY, B. The estimation of insecticides for quarantine disinfection of living plants against scale-insects by submersion in toxic solutions. *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 129-135. [In Russian, with title and summary also in English].

JAAG, Otto. Sur une nouvelle maladie du sapin blanc et de l'épicéa. *Journal forestier suisse*, Berne, 1937, 8^{me} année, n° 9/10, p. 201-203, pl. 1-2. [*Pleurotus mitis*].

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-37. Monthly Report No. 56. July, 1937. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No. 9, p. 758. [*Nomadacris septemfasciata*].

JACOBS, S. E., and RAICHOUDHURY, D. P. Some characteristics of *Ephestia kühniella* Z. reared under aseptic conditions. *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No. 3, pp. 632-650, fig. 1, pl. XL. References, p. 650.

Jancke, O. Traubenwicklerzucht im Laboratorium. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Jahrg., Heft 10, S. 516-526, Abb. 1-3. Schrifttum, S. 525-526.
[*Clysia ambiguella, Polychrosis botrana*].

Jenkins, Anna E., e **Bitancourt**, A[gesilau] A. Doenças das plantas causadas por fungos dos generos *Elsinoe* e *Sphaceloma*. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 305-313, fig. 1. Bibliographia, pags. 311-313.
[With summary in English].

Jovino, Fausto. Produzione olearia e lotta al cicloconio. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 39, p. 328, 1 fig.
[*Cycloconium oleaginum*].

Klemm, M. Pflanzenschutzmeldedienst und Erzeugungsschlacht. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17 Jahrg., Nr. 9, S. 69-70. Schriftenverzeichnis, S. 70.

Kokin, A. Physiological study of the injuriousness of common mosaic disease of tobacco Dubeck Nikitsky No. 44. *Plant Protection*, Leningrad, 1937, Fasc 12, pp. 95-112 [Literature], pp. 110-111.
[In Russian, with title and summary also in English]

Kokin, A., and **Voskoboynikova**, V. The effect of treating spring wheat seeds with naphthaline *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 179-181
[In Russian, with title also in English].

Korab, I. On the measures of controlling Bruchus pisorum L. *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 184-185.
[In Russian, with title also in English]

Krug, H P. Fusarium como causador da murcha do algodoeiro no Brasil *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 319-321.
[*Fusarium vasinfectum* forma 1].

Kvíčala, Bohumir Náchylnost odrud soji ku bakterielní spále, zjistěná umělou infekcí. Předběžné sdělení *Sbornik Československé Akademie Zěmědelské*, Praha 1937, roč. XII, seš 3, str. 266-271, 4 obr Literatura, str 270.
[In Czechoslovakian, with title and summary also in German — 'Neigung der Sojabohnen - Sorten zum Bakterienbrand, die durch die kunstliche Infektion festgestellt wurde'. – *Bacterium glycineum*]

Larose, E., et **Vanderwalle**, R. Quelques résultats d'infection artificielle d'*Ustilago nuda tritici* Schaff. sur le froment. *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1937, tome VI, nº 2, p 81-87 Bibliographie, p. 86.
[With titles and summaries also in Flemish, German, and English 'Eenige uitslagen ven kunstmatige besmetting van de tarwe met *Ustilago nuda tritici*, Schaff' — 'Einige Ergebnisse künstlicher Weizeninfektion mittels *Ustilago nuda tritici*, Schaff.'. — 'A few results of artificial loose smut infection (*Ustilago nuda* Schaff.) on wheat']

Laubert, R. Eine wenig bekannte Schädigung von Blutenbegonien *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17 Jahrg., Nr. 9, S. 72.
[*Pegomyia bicolor* on *Begonia semperflorens*].

Linford, M. B. The feeding of the root-knot nematode in root tissue and nutrient solution. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No 8, pp. 824-835, figs. 1-2. Literature cited, p. 835.
[*Heterodera marioni*].

MALENOTTI, Ettore Polemica sopra una data Piralide e sesamia del mais. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n 38, p. 318. [Remarks on the article of E Zanini (See this *Bulletin*, 1937, No. 10, p. 244). *Pyrausta nubilalis* and *Sesamia cretica* (not *Leucania zeae*)]

MALENOTTI, Ettore. Ancora due parole su piralide e sesamia del mais Un diminutivo a posto *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 40, p. 336.

MAMONOV, B. The Hessian fly in northern districts of wheat acclimatization. *Plant Protection*, Leningrad, 1937, Fasc 12, pp 143-158, fig 1. [Literature], p 157.
[In Russian, with title and summary also in English — *Mayetiola destructor*].

MARCHAL, Em Observations et recherches effectuées à la Station de Phytopathologie de l'Etat, pendant l'année 1936 *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1937, tome VI, nº 2, p 73-80. Publications phytopathologiques du personnel de la Station pendant l'année 1936, p. 79.
[With titles and summaries also in Flemish, German and English - 'Onderzoekingen en waarneming gedaan aan het Rijksstation over plantenziektenleer gedurende het jaar 1936' — 'Forschungen und Beobachtungen ausgeführt an der Staatslandwirtschaftlichen Versuchsstation fur Pflanzenkrankheiten während des Jahres 1936' — 'Researches and observations carried out at the Station of Phytopathology of the State, during the year 1936']

MARCHIONATTO, Juan B Los hongos parásitos de las plantas cultivadas (Estado actual de nuestros conocimientos) *Agronomía*, Buenos Aires, 1937, año XXX, nº 155, págs 50 a 62

MEHTA, P R A fruit rot of apples caused by a species of *Rhizopus* *Current Science*, Bangalore, 1937, Vol VI, No 2, pp 58-59, fig 1

MILANEZ, Fernando Notas sobre duas galhas brasileiras *Rodriguesia*, Rio de Janeiro, 1936, anno II, numero especial, pags 131-142, fig 1, est 1-8 Referencias, pag 140
[*Eudiplosis brasiliensis* on *Manihot*, *Calorileya* sp on *Cattleya guttata*]

MILBRATH, J A An indication of seed transmission of mosaic virus in tomato seed *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No 8, pp 868-869

MINERBI, Giuseppe I danni della *Theba carthusiana* O F Muller alla coltivazione della canapa *Rivista di Patologia Vegetale*, Pavia, 1937, anno XXVII, nn. 3-4, pp 79-82, figg 1-3

MÜLLER, Albert S Observações sobre o ensino de Phytopathologia no Brasil. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 145-147.

MULLER, Albert S Tres especies de Septobasidium sobre Citrus em Minas Geraes. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 351-354.
[*Septobasidium pseudopedicellatum*, *Septob lepidosaphis*, *Septobasidium* sp]

MUNDKUR, B B, PAL, B P, and NATH, Pushkar Relative susceptibility of some wild and cultivated potato varieties to an epidemic of late-blight at Simla in 1936. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. IV, pp 627-632, pl LII References, p 632
[*Phytophthora infestans*]

NAUMOVA, N. Natural fluctuations of temperature and duration of incubation period of Puccinia glumarum f tritici *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 51-66, figs 1-4. [Literature], p. 65
[In Russian, with title and summary also in English].

NISIKADO, Yosikazu, and HIRATA, Kôzi. Studies on the longevity of sclerotia of certain fungi, under controlled environmental factors. *Berichte des Ōhara Instituts für landwirtschaftliche Forschungen*, Kurashiki 1937, Bd. VII, Heft 4, S. 535-547. References, S. 547.
[*Sclerotinia trifoliorum*, *Scl. libertiana*, *Scl. minor*, *Sclerotium oryzae*, *Hypochnus sasakii*, *H. centrifugus*].

NISIKADO, Yosikazu, and YAMAUTI, Kiyû. On *Neocosmopora vasinfecta* Smith, a causal fungus of seedling-wilt of silk-tree, *Albizzia Julibrissin* Durazz. *Berichte des Ōhara Instituts für landwirtschaftliche Forschungen*, Kurashiki 1937, Bd. VII, Heft 4, S. 549-556, pls. XXVII-XXIX. References, S. 555-556.

NISIKADO, Yosikazu, and YAMAUTI, Kiyû. Temperature relations to the vegetative and reproductive growth and the pathogenicity of *Neocosmospora vasinfecta* Smith. *Berichte des Ōhara Instituts für landwirtschaftliche Forschungen*, Kurashiki 1937, Bd. VII, Heft 4, S. 557-572, graph I, pl. XXX References, S. 572.

NOBLE, R. J. HYNES, H. J., MAGEE, C. P., MCCLEARY, F. C., BIRMINGHAM, W. A., EDWARDS, E. T., BROWN, H. P. The occurrence of plant diseases in New South Wales with particular reference to the three-year period ending 30th June, 1936. *Department of Agriculture, New South Wales. Science Bulletin No.* 57, Sydney, 1937, 42 pp., 11 figs.

NOVOTELNOVA, N Influence of temperature and humidity on germination of Phytophthora infestans conidia. *Plant Protection*, Leningrad, 1937, Fasc 12, pp. 79-88, figs. 1-3. [Literature], pp. 86-87.
[In Russian, with title and summary also in English]

PAPADOPOULOU, A. Unkrautsämereien aus Weizenausputz verschiedener Landschaften Griechenlands. 1. Mitteilung. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1936, année 2, fasc. 1, p. 13-16.

PAVARI, A[ldo], [e] GOIDÀNICH, G[abriele]. Verso la risoluzione del problema della "moria dell'olmo". *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 40, p. 336.
[*Graphium ulmi*].

PEREIRA COUTINHO, M. F. Combate á mosca das frutas pelos liquidos atractivos. "*Noticias*" *Agricola*, Lisboa, 1937, ano V, nº 230, pag. 5, 1 fig
[*Ceratitis capitata*].

PICKEL, Bento. Lista das molestias e dos fungos parasitarios das plantas cultivadas em Pernambuco. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 207-212.

PIERCE, W. H. Legume viruses in Idaho. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 8, pp. 836-843, figs. 1-2. Literature cited, p. 843.

PIETSCH, Albert. Unkrautsamen und Unkrautfrüchte. Stuttgart, Kosmos, Gesellschaft der Naturfreunde, 1937, 16 S., 64 Abb. (Kosmos Bändchen, Nr. 147).

PONTIS, Rafael E. La tuberculosis del olivo. *Boletin Agricola*. Mendoza, 1937, año V, nº 5 y 6, págs. 16 a 18, fig 1.
[*Phytomonas* (*Bacterium*) *savastanoi*].

PRINZ, J. Zur Frage der Virulenzveränderung der Reblaus-Biotypen *Plant Protection*, Leningrad, 1937, Fasc. 12, pp. 137-142.
[In Russian, with title and summary also in German — *Phylloxera*.

PRUTHI, Hem Singh, and SAMUEL, C. K Entomological investigations on the leaf-curl disease of tobacco in North Bihar. I. Transmission experiments with some suspected insect vectors. II. An alternative host of the virus and the insect transmitter. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. IV, pp. 659-670, pls. LVI-LVIII. References, p. 665.

PUECHER PASSAVALLI, L. Difesa preventiva e curativa della fragola da malattie ed insetti nocivi. *Bullettino della R. Società Toscana di Orticultura*, Firenze, 1937, anno LXII, nn. 3-4, pp. 55-60, 2 figg.; nn. 7-8, pp. 122-125, 2 figg.

PUTTEMANS, Arsène. Algunos dados para servir á historia da Phytopathologia no Brasil e ás primeiras notificações de doenças de vegetaes neste paiz. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 17-36, 2 retr.

PUTTEMANS, Arsène. Computo das especias de « ferrugens » verdadeiras (Uredinales) assignaladas no Brasil e paizes limitrophes. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 97-105.

PUTTEMANS, Arsène. Relação dos fungos e bacterias encontrados na batateira (*Solanum tuberosum*). *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 265-302

PUTTEMANS, Arsène. Reivindicação visando a denominação scientifica da doença da batateira (*Phytophthora infestans* (Mont.) de By.). *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 341-350. Bibliographia, pags. 349-350.

[With summary also in French. — The causal agent of the potato blight having been described on 19 August, 1845 by Miss Libert under the name of *Botrytis vastatrix* and on 30 August of the same year by Montagne under the name of *B. infestans*, the A. of this paper now proposes the name of *Phytophthora devastatrix* (Lib.) n. comb.]

RĂDULESCU, E. Experienţe asupra eficacităţii preparatelor Katakilla şi Drymac Nr. 2 în combaterea omizilor fluturelui alb de varză (Pieris brassicae L.). *Agricultura Nouă*, Cluj 1937, an. IV, no. 9, pag. 305-309, fig. 1.

RAHMAN, Khan A., and BHARDWAJ, Nand Kishore. The grape-vine thrips (*Rhipiphorothrips cruentatus* Hood) [Thripidae: Terebrantia: Thysanoptera]. *The Indian Journal of Agricultural Science*, Delhi, 1937, Vol. VII, Pt. IV, pp. 633-651, pls. LIII-LV. References, p. 651.

RANGEL, Jefferson Firth. A podridão preta do abacaxi. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 329-332.

[*Thielaviopsis paradoxa*].

RAVIKOVITCH, S., and BIDNER, N. The deterioration of grape-vines in saline soils. *The Empire Journal of Experimental Agriculture*, London, 1937, Vol. V, No. 19, pp. 197-203, pls. 6-7. References, p. 203.

RAWITSCHER, Felix. Sobre picadas dos Aphideos. *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags. 117-118.

REINKING, Otto A. Isolations made from heart rot of banana in Honduras. *Phytopathology*, Lancaster, Pa. 1937, Vol. 27, No. 8, pp. 853-854. Literature cited, p. 854.

[*Fusarium moniliforme*]

RICHTER, H. Blatt-, Stengel- und Hülsenflecken an Lupinen. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17. Jahrg., Nr. 10, S. 77-80, Abb. 1-9. Schriftennachweis, S. 80.

[*Macrosporium sarcinaeforme* (?) and *Ceratophorum setosum* on *Lupinus* spp.].

RIEHM, E. Gesetz zum Schutze der landwirtschaftlichen Kulturpflanzen. *Die Umschau*, Frankfurt a. M. 1937, 41. Jahrg., Heft 38, S. 863-864.

[See also this *Bulletin*, 1937, No. 8, p. 191].

RÖDER, K. Phyllosticta cannabis (Kirchner ?) Speg. eine Nebenfruchtform von Mycosphaerella cannabis (Winter) n. c. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1937, 47. Jahrg., Heft 10, S. 526-531, Abb. 1-4. Literaturnachweis, S. 531.

Ruehle, Geo. D. A strain of Alternaria citri Ellis and Pierce causing a leaf spot of rough lemon in Florida. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 8, pp 863-865, fig 1.

Saburova, P. Determination of loose smut infection in wheat by the developing ear (Preliminary note) *Plant Protection*, Leningrad, 1937, Fasc 12, pp 171-173, figs. 1-2
[In Russian, with title also in English. — *Ustilago*]

Sarejanni, J A. Liste II des maladies des plantes cultivées et autres de la Grèce. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1936, année 2, fasc 1, p. 8-12.
[Prepared according to the specimens studied at the Benaki Phytopathological Institute during the years 1934 and 1935 — For the first list, see this *Bulletin*, 1936, No 8, p 188].

Sarejanni, J A. La pourriture du collet des Solanées cultivées et la classification du genre Phytophthora *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1936, année 2, fasc 1, p 35-52 Bibliographie, p 51-52. [*Phytophthora* spp].

Sarejanni, J A Un parasite nouveau du caroubier *Annales de l'Institut Phytopathologique Benaki* Kiphissia (Athènes), 1936, année 2, fasc. 1, p 53-56. Bibliographie, p 56
[*Diplosclerophoma* (*Diplodina*) *ceratoniae* n sp, a secondary parasite of the fruits of *Ceratonia siliqua*. A Latin diagnosis of this species is appended].

Seín, Jr, Francisco. The development of the giant Surinam toad, *Bufo marinus* L *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P R, 1937, Vol XXI, No. 1, pp 77-78, figs 1-3.
[See the article of G. N. Wolcott this *Bulletin*, 1937, No 11, p 268]

Skevtchencho, M. Liriomyza cicerina Rond and its importance to cultivation of Cicer arietinum *Plant Protection*, Leningrad, 1937, Fasc 12, pp 159-170, figs 1-6 [Literature], pp 169-170
[In Russian, with title and summary also in English]

Silberschmidt, Karl. A importancia do methodo de enxertia em immunologia vegetal *Rodriguésia*, Rio de Janeiro, 1936, anno II, numero especial, pags 119-120.

Simmonds, H W. Fruit fly trapping experiments *Agricultural Journal*, Suva, Fiji, 1937, Vol 8, No 3, pp. 13-14
[*Chaetodacus passiflorae*]

Simmonds, H W. Fruit fly. *Agricultural Journal*, Suva, Fiji, 1937, Vol 8, No 3 p 23.
[*Chaetodacus*]

Simmonds, H. W The biological control of the weed Clidemia hirta, commonly known in Fiji as the "Curse" *Agricultural Journal*, Suva, Fiji, 1937, Vol 8, No. 3, pp 37-39. References, p 39

Simmonds, H. W. The giant toad *Agricultural Journal*, Suva, Fiji, 1937, Vol 8, No. 3, pp. 45-46.
[*Bufo marinus*].

Smith, Clayton O. Crown gall on incense cedar, Libocedrus decurrens. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No 8, pp 844-849. figs 1-3. Literature cited, p. 849.
[*Pseudomonas tumefaciens*].

Snell, Walter H Three thousand mycological terms Illustrations by Henry A C Jackson [Lancaster, Pennsylvania, Science Press Printing Company], 1936, 151 pp, 12 pls (Publication No 2 of the Rhode Island Botanic Club, Providence, R I)

[A volume which may be useful to those who are not expert mycologists or who find it difficult to discover the meanings of many terms in present day mycological literature It includes the technical terms used in college courses in the morphology of the fungi and in mycology. In addition, it aims to give the special meanings of technical and ordinary words or phrases used particularly in describing the higher fungi, for the benefit of amateur mycologists

Numerous figures assist in the easier understanding of the technical terms comprised in this dictionary]

Stahel, Gerold Notes on Cercospora leaf spot of bananas (*Cercospora musae*) *Tropical Agriculture*, Trinidad, B W I, 1937 Vol XIV, No 9, pp 257-264 pls I-VIII References, p 264

Stapp, C und **Bucksteeg** W Untersuchungen uber die Beeinflussbarkeit mikrobiologischer Vorgänge im Boden durch das Unkrautbekämpfungsmittel Natriumchlorat *Zentralblatt fur Bakteriologie Parasitenkunde und Infektionskrankheiten*, II Abt, Jena 1937 97 Bd Nr 1/3 S 1-33, Abb 1 18 Literaturverzeichnis, S 33

Steiner, G Observations on the yam nematode (Rotylenchus bradys [Steiner & Le Hew, 1933]) Filipjev, 1936 *Phytopathology* Lancaster Pa 1937 Vol 27 No 8, pp 865-867, fig 1

Stelzner, G Resistenzzuchtung bei Kartoffeln *Forschungsdienst*, Berlin 1937 Bd 4, Heft 6, S 261-266 Schrifttum S 266

Tariakowsky H Sergio La gomosis y la pudricion parda de los citrus *Boletin de la Sociedad Agricola del Norte* La Serena (Chile), 1937, ano 25 nº 7 págs 158 a 160

[*Pythiacystis* (*Phytophthora*) *citrophthora*

Tilemans, Em Quelques notes concernant le poudrage des forêts *Bulletin de l Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux 1937, tome VI, nº 2, p 88-119 Bibliographie, p 107-118

[With titles and summaries also in Flemish German and English — ' Einige notas over boschbestuiving ' Etliche Anmerkungen uber Waldbestäubung — ' A few notes on forest dusting ']

Tompkins C M, and **Tucker** C M Phytophthora rot of honeydew melon *Journal of Agricultural Research* Washington, D C, 1937, Vol 54 No 12 pp 933-944, figs 1-4 Literature cited, p 944

[*Phytophthora capsici* on *Cucumis melo* var *inodorus*]

Trinchieri Giulio Avvenire economico dell'Impero Il cotone nemici e malattie *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n 39 p 327, 3 figg

[A survey of cotton pests and diseases observed up-to-date in Africa, stressing the necessity of phytosanitary research work also in Ethiopia

Trotter, A[lessandro] Contributi alla patologia del nocciuolo R Osservatorio regionale di Fitopatologia di Portici (Napoli) Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R Università di Napoli *Ricerche, osservazioni e divulgazioni fitopatologiche*,

per la Campania ed il Mezzogiorno Portici 1937, VI, pp 1 70, figg 1-16 tav I Bibliografia, pp 67-70
[See also this *Bulletin*, 1933, No 9 p 215 — The A describes his research work and observations on seed abortion of *Corylus avellana*]

Trotter, A[lessandro] La lotta diretta contro le ruggini del frumento R Osservatorio regionale di Fitopatologia di Portici (Napoli) Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R Università di Napoli *Ricerche osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno* Portici 1937 VI pp 103 107 1 fig Bibliografia, p 107
[*Uredinales*]

Trotter, A[lessandro] I trattamenti polverulenti contro la peronospora della vite R Osservatorio regionale di Fitopatologia di Portici (Napoli) Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R Università di Napoli *Ricerche osservazioni e divulgazioni fitopatologiche per la Campania ed il Mezzogiorno* Portici 1937 VI, pp 108 110
[*Plasmopara viticola*]

Trotter A[lessandro] La "maculazione ad anello nelle foglie del tabacco *Bollettino Tecnico del R Istituto Sperimentale per le Coltivazioni dei Tabacchi «Leonardo Angeloni* Scafati 1937 anno XXXIV n 1 pp 51-60 tav I VI Bibliografia pp 57 59
[With title and summary also in English The ringspot disease of tobacco leaf — A virus disease

Tzveankov, S Baiting as a means for controlling Tenebrionidae injuring cucurbits *Plant Protection*, Leningrad 1937 Fasc 12 pp 181 184
[In Russian with title also in English

United States Department of Agriculture Division of Forest Pathology Bureau of Plant Industry, in cooperation with the Forest Products Laboratory, Forest Service Madison Wisconsin List of publications relating to fungous defects in forest products including decay in trees Washington D C] 1937 20 pp

Vasudeva, R Sahai Studies on the root rot disease of cotton in the Punjab IV The effect of certain factors influencing incidence of the disease *The Indian Journal of Agricultural Science* Delhi 1937 Vol VII Pt IV pp 575 587 figs 1 4 References p 587
[*Rhizoctonia solani* and *Rhiz bataticola*]

Vavilov, N New achievements in rust control abroad *Plant Protection* Leningrad 1937, Fasc 12 pp 5 10
In Russian, with title in English *Uredales*

von Ubisch G A alteração da morphologia de flores pelos Ustilaginales *Rodriguesia* Rio de Janeiro, 1936, anno II numero especial pags 323 327

Walker, J C Injury to cabbage by lightning *Phytopathology* Lancaster Pa 1937, Vol 27, No 8, pp 858 861 figs 1 2

Ward F S Deterioration of copra caused by bacteria and moulds *Department of Agriculture, Straits Settlements and Federated Malay States Scientific Series*, No 20 pp 95-108, 2 pls References p 108

Warington, Katherine Observations on the effect of molybdenum on plants with special reference to the Solanaceae *The Annals of Applied Biology* London 1937, Vol XXIV, No 3, pp 475-493 figs 1-8, pl XXX References p 493

Watson (Hamilton), Marion A Field experiments on the control of aphis-transmitted virus diseases of *Hyoscyamus niger* *The Annals of Applied Biology*, London, 1937, Vol. XXIV, No 3, pp. 557-573, figs. 1-2 References, p 573.

Wickens, G M, Report of the Division of Plant Pathology for year ending December, 1936. *The Rhodesia Agricultural Journal*, Salisbury, 1937, Vol. XXXIV, No 9, pp. 689-696.

Wolcott, George N What the giant Surinam toad, *Bufo marinus* L., is eating now in Puerto Rico. *The Journal of Agriculture of the University of Puerto Rico*, Río Piedras, P. R, 1937, Vol XXI, No 1, pp. 79-84 Literature cited, p 84 [In this respect, see the article of F Seín, Jr (*Bulletin*, 1937, No 11, p 265). — The introduction of *B marinus* into Puerto Rico for the control of white grubs (*Phyllophaga* — *Lachnosterna* spp) was not only an immediate and temporary success, but tends, at least so far as the food habits of the toad determine its trend, continually to become more effective and more permanent].

Wollenweber, H. W, und Hochapfel, H Beiträge zur Kenntnis parasitärer und saprophytischer Pilze IV Coniothyrium und seine Beziehung zur Fruchtfäule *Zeitschrift für Parasitenkunde*, Berlin 1937, 9 Bd, 5 Heft, S. 600-637, Abb I-III. Schriftennachweis, S 637
[See also this *Bulletin*, 1936, No 12, p 288]

Worsley, R R le G The insecticidal properties of some East African plants III *Mundulea suberosa* Benth Part 2 Chemical constituents *The Annals of Applied Biology*, London, 1937, Vol XXIV, No 3, pp 651-658 References, p 658

Worsley, R R le G The insecticidal properties of some East African plants IV *Mundulea suberosa* Benth Part 3, Variability of samples *The Annals of Applied Biology*, London, 1937, Vol XXIV, No 3, pp 659-664, fig 1 References, p 664

Zanini, Emilio Polemichetta a salvaguardia della maiscoltura *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n 39, p 328
[Regarding the control of *Pyrausta nubilalis* and *Sesamia cretica* — See the preceding article by the same author (this *Bulletin*, 1937, No 10, p 244) and the articles by E Malenotti (this *Bulletin*, No 11, p 262)].

Zubov, M. Copper-organic preparations for controlling Plasmopara viticola on grapes. *Plant Protection*, Leningrad, 1937, Fasc 12, pp 174-176
[In Russian, with title also in English]

NOTES

International Horticultural Congress. — The next International Horticultural Congress will take place at Berlin from 12 to 17 August, 1938.

In the eighth section of this Congress dealing with the control of the pests of cultivated plants, the following subject will be discussed — 'The measures required for the prevention of losses due to the use of insecticides harmful to man'

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Brazil: Diseases of Cultivated or Useful Plants, Observed in the State of São Paulo †

In the following list (first part) are given the diseases of cultivated or useful plants, studied at the Laboratory of Plant Pathology of the Institute of Biology, São Paulo, from 1931 to 1936

The recognition of the parasites and diseases here enumerated was made by the author of the present communication and also by Messrs. Raul Drummond Gonçalves, João G. Carneiro and Spencer C. Arruda, assistants in the aforesaid Institute

PINEAPPLE	
	Ceratostomella paradoxa (Fr.) Wint.
	Phytophthora sp.
GROUNDNUT	
	Cercospora personata (B. and C.) Ell.
ARTICHOKE	
	Ramularia cynarae Sacc.
AVOCADO PEAR	
	Sphaceloma perseae Jenk.
	Oidium perseae Noack.
	Colletotrichum gloeosporioides Penz.
	Hendersonia sp.
	Diplodia natalensis Ev.
	Acrostalagmus cinnabarinus Corda.
	Pestalozzia sp.
Eruptive pustule of the fruit	Cause unknown
Mosaic	Virus ?
Necrosis of the limb	Virus ?
Sooty mold	*Stomiopeltis* sp.
Lenticellosis of the fruit	Physiological cause.

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* Under this and the next heading the countries are arranged in French alphabetical order

† Communication from the official correspondent of the Institute, Mr. AGESILAU A. BITANCOURT, Assistant, Director of the Institute of Biology, Ministry of Agriculture, Industry and Commerce, São Paulo, Brazil.

OATS	
	Puccinia graminis avenae Erickss. and Henn.
AZALEA	
	Exobasidium discoideum Ellis.
BANANA	
	Cordana musae (Zimm.) v. H.
	Helminthosporium torulosum (Syd.) Ash.
	Mycosphaerella musae Speg.
	Piricularia oryzae Br. and Cav.
	Cladosporium sp.
	Leptosphaeria musarum (Sacc.) Berl.
	Gloeosporium musarum C. and M.
	Stachylidium theobromae Turc.
	Acrostalagmus cinnabarinus Corda.
	Fusarium sp.
	Chaetothyrina musarum (Speg.) Theiss.
	Nigrospora sp.
	Polyporus sapurema A. Möller.
BEET	
	Cercospora beticola Sacc.
COFFEE	
	Rosellinia sp.
	Cercospora coffeicola B. and C.
	Omphalia flavida (Cooke) Maubl. and Rang.
	Colletotrichum gloeosporioides Penz.
	Diplodia natalensis Ev.
	Coniothyrium sp.
	Ramularia goeldiana Averna-Saccà
SUGAR CANE	
Mosaic	Virus.
Sereh	Virus.
Streak disease	Virus.
	Colletotrichum falcatum Went.
	Leptosphaeria sacchari v. Br. de Haan.
	Cercosporina longipes Butl.
	Ceratostomella paradoxa (Fr.) Wint.
	Melanconium sacchari Massee.
CARROT	
	Rhizoctonia crocorum (Pers.) DC.

CHERRY	
	Cercospora cerasella Sacc.
CHESTNUT	
	Corticium koleroga (Cke.) v. H.
CHAYOTE	
	Leandria momordicae Rangel
	Mycosphaerella citrullina (Smith) Gross
OAK	
	Oidium quercinum Thum.
CABBAGE	
	Peronospora parasitica (P.) Fr.
	Alternaria brassicae (B.) Sacc.
	A. herculea (Ell. and Mart.) Ell.
	Plasmodiophora brassicae Wor.
	Pseudomonas campestris (Pam.) E. F. S.
CAULIFLOWER	
	Plasmodiophora brassicae Wor.
	Pseudomonas campestris (Pam.) E. F. S.
LEMON, see also CITRUS	
	Ascochyta citri Penz.
	Elsinoe fawcetti Bitanc. and Jenk.
CITRUS, see also Lemon, Lime, Tangerine, Orange and Grape fruit	
	Phytophthora spp.
Psorosis . .	Virus
	Diaporthe citri Wolf
Leprosis . .	Virus
	Colletotrichum gloeosporioides Penz.
Foliocellosis	Physiological cause
Oleocellosis	Physiological cause
Splitting of the fruit	Physiological cause
	Stomiopeltis citri Bitanc.
	Capnodium citri (Berl.) Desm.
	Cephaleuros mycoidea Karst.
	Septobasidium albidum Pat.
	Sept. lepidosaphis Couch
	Penicillium digitatum Sacc.
	Pen. italicum Wehm.
	Oospora citri-aurantii Ferr.
	Diplodia natalensis Ev.
Brown spots of the fruit	Cause unknown

Quince	*Fabraea maculata* (Lév.) Atk. *Cercospora mali* E. and E.
Cucumber	*Pseudoperonospora cubensis* (B. and C.) Rost.
Cotton	*Glomerella gossypii* (South.) Edg. *Verticillium albo-atrum* Reink. and Berth. *Cerotelium desmium* (Berk. and Br.) Arth. *Bacterium malvacerum* E. F. S. *Ascochyta gossypii* Syd. *Cercospora gossypina* Cke. *Ramularia areola* Atk. *Nematospora gossypii* Ash.
Mosaic	Virus.
Cryptomeria	*Pestalozzia funerea* Desm.
Cycas	*Hormodendron cladosporioides* Sacc.
Dahlia	*Cercospora grandissima* Rangel.
Date palm	*Graphiola phoenicis* (Moug.) Poit.
Maple	*Peziotrichum saccardianum* Rangel.
Fig tree	*Cerotelium fici* (Cast.) Arth. *Phytophthora* sp. *Colletotrichum gloeosporioides* Penz.
Indian fig	*Montagnella opuntiarum* Speg.
Strawberry	*Mycosphaerella fragariae* (Tul.) Lind. *Dendrophoma obscurans* (E. and E.) And.
Fuchsia	*Puccinia fuchsiae* Syd. and Holw.

GOMBO	
	Oidium sp.
	Ascochyta abelmoschi Harter.
GUAVA	
	Puccinia psidii Wint.
	Colletotrichum gloeosporioides Penz.
POMEGRANATE	
	Cercospora punicae P. Henn.
FRENCH BEAN	
	Uromyces appendiculatus (Pers.) Fr.
	Erysiphe polygoni DC.
	Colletotrichum lindemuthianum (S. and M.) B. and C.
	Phaeoisariopsis griseola Sacc.
	Cercospora canescens E. and M.
	Macrophomina phaseoli (Maub.) Ash
LIME BEAN	
	Ascochyta phaseolorum Sacc
HORTENSIA	
	Oidium sp.
	Cercospora hydrangeae E. and E.
	Alternaria sp.
JASMIN	
	Cercospora sp
LETTUCE	
	Septoria lactucae Pass.
SOUR LIME TREE, see also *CITRUS*	
	Gloeosporium limetticolum Claus
	Colletotrichum gloeosporioides Penz
	Elsinoe fawcetti Bitanc. and Jenk.
	Els. australis Bitanc. and Jenk.
Rotting of the style	Unknown cause.
RANGPUR LIME TREE, see also *CITRUS*	
	Elsinoe fawcetti Bitanc. and Jenk
SWEET LIME TREE, see also *CITRUS*	
	Elsinoe australis Bitanc. and Jenk
Xyloporosis	Physiological cause.

LUCERNE	
	Uromyces striatus Schroet.
	Pseudoplea briosiana Poll.
MAIZE	
	Physoderma zeae-maydis Shaw.
	Ustilago zeae (Beckm.) Ung.
	Puccinia sorghi Schw.
	Diplodia macrospora Earle.
	Dipl. zeae (Schw.) Lév.
TANGERINE, see also *CITRUS*	
	Ascochyta citri Penz.
Zonal chlorosis	Virus.
	Corticium salmonicolor B. and Br
SATZUMA TANGERINE, see also *CITRUS*	
	Elsinoe fawcetti Bitanc. and Jenk.
MANGO	
	Colletotrichum gloeosporioides Penz.
	Oidium sp.
	Leptosphaeria sp.
	Cephaleuros mycoidea Karst.
CASSAVA	
	Oidium sp.
	Cercospora henningsii Allesch.
MULBERRY	
	Cylindrosporium mori Berl.
	Bacterium mori Boy. and Lamb.
CARNATION	
	Uromyces caryophyllinus (Sch.) Wint.
	Heterosporium echinulatum (B.) Cke.
	Alternaria dianthi S. and H.
ONION	
	Bacillus carotovorus Jones
	Colletotrichum circinans (B.) Vogl.
	Macrosporium porri Ellis.
BITTER ORANGE, see also *CITRUS*	
	Elsinoe fawcetti Bitanc. and Jenk.
Chlorosis	Virus.
	Leptosphaeria bondari Bitanc. and Jenk.
	Ascochyta citri Penz.
	Septoria sp.

SWEET ORANGE, see also *CITRUS*	
	Corticium salmonicolor B. and Br.
Zonal chlorosis	Virus.
Exanthema	Physiological cause.
	Leptosphaeria bondari Bitanc. and Jenk.
	Ascochyta citri Penz.
	Mycosphaerella loefgreni Noack.
Collapse of the mesophyll	Physiological causes
	Elsinoe australis Bitanc. and Jenk.
WILLOW	
	Cercospora salicina Ell. and Ev.
GRAPEFRUIT, see also *CITRUS*	
	Elsinoe fawcetti Bitanc. and Jenk.
Zonal chlorosis	Virus.
	Leptosphaeria bondari Bitanc. and Jenk.
	Cercospora aurantii Heald and Wolf.

Eritrea: Locusts *

No locusts were reported in the Colony during the month of September, 1937.

The Netherlands: Organization of the Control of the Colorado Potato Beetle, *Leptinotarsa decemlineata* †

As an invasion of the Netherlands by the Colorado beetle from Belgium was considered probable, a Service was organized for the purpose of giving all information on the life history of the insect and relative control measures, especially in the southern provinces: Limburg, North Brabant, and Zealand. This organization is under the direction of Mr. K. Oanust, Chief Technical Officer of the district, assisted by all the officers of the Phytopathological Service of the provinces.

A general distribution has been made of colored plates on which are attached life-size models of the larva and the adult, as well as pamphlets also containing illustrations in colour. The plates and pamphlets have been sent to all staff members of the Services of agricultural information, agricultural and horticultural education, and also primary and secondary schools.

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* Communication from Dr. LUIGI M. BOLOGNA, Acting Chief of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

† Communication from the State Phytopathological Service, Wageningen, official correspondent of the Institute.

The beetle is studied in all the schools, and as far as possible, the collection of the insect has been organized by utilizing the services of school children.

Detailed information has been given to all farmers and horticulturists and also to policemen and gendarmes.

During the winter, the problem of the Colorado beetle was of primary importance at all farmers' and horticulturists' meetings.

In 1937, the presence of the Colorado beetle was reported in three localities: Castenray, Baarlo and Bakel. These three foci are situated near the Belgian frontier, to the south-west of the Netherlands.

Each of these foci was caused by one adult. The foci were treated in accordance with the regulations established by the International Committee for the control of the Colorado beetle, and were completely destroyed. The larvae and adults were collected and destroyed. Plants growing in contaminated zones were destroyed and the soil sieved in order to remove all larvae, pupae and adults; the soil was subsequently sprayed with petroleum and benzine. All potato fields in the vicinity were repeatedly treated with lead arsenate.

Italian Somaliland: Recent Observations *

Observations made during the month of August, 1937.

BANANAS. — Attacks by nematodes causing root rot more extensive than in July. Attacks by *Aspidiotus destructor* less severe. Considerable damage caused by different cryptogams (chiefly *Gloeosporium*) to bananas during transport to Italy.

COTTON. — Reddening and curling due to physiological phenomena chiefly in consequence of strong winds. The capsules are beginning to open, many of which show signs of having been attacked by different moths mainly *Platyedra* and *Diparopsis*.

Numerous seeds are attacked by *Dysdercus* and *Oxycarenus*.

MAIZE. — Serious damage to kernels caused by various beetles (*Curculionidae* and *Nitidulidae*); considerable damage also effected by birds.

GROUNDNUT. — Very considerable damage brought about by *Cercospora personata* resulting in a loss of 70 per cent. in yield.

CASTOR OIL PLANT. — With the opening of the racemes the first caterpillars of *Argiroploce walbergiana* were found.

SESAME. — Occasional attacks of *Antigastra catalaunalis*.

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* Communication from Dr. FERRANTE PÀVERI-FONTANA, Acting Chief of the Agricultural Bureau of Italian Somaliland, Mogadiscio.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Argentine Republic. — By Decree No 108.835 of 21 June, 1937, the 'Instituto de Investigaciones sobre la Langosta' is established, which Institute shall be under the control of the 'Dirección de Sanidad Vegetal' of the Ministry of Agriculture, and shall deal with all questions regarding the scientific study of the biology of the South American locust (*Schistocerca paranensis*), control measures and possible industrial utilization.

The duties of the Institute will consist in:—

(*a*) Drawing up the programme of research work and operations to be executed each year.

(*b*) Cooperating with national and provincial organizations and private associations engaged in similar work, for the realization of studies and research connected with its scientific activities.

(*c*) Preparing, with the approval of the Ministry of Agriculture, the reports and proposals to be presented at the international meetings, assisting towards the execution of the resolutions ratified and approved by the National Government.

(*d*) Corresponding with similar organizations abroad, exchanging data and information on different studies and research work, and proposing periodically to the Ministry of Agriculture the publication of information received, prepared or compiled.

(*e*) Presenting the Ministry of Agriculture each year with a memorandum giving details on the research work and operations carried out.

The aforesaid Institute shall be established at the José C. Paz Plant Quarantine Station, and the sum of forty thousand 'pesos' is assigned towards its installation and organization. (*Boletín Oficial de la República Argentina*, Buenos Aires, 23 de septiembre de 1937, año XLV, núm. 12.959, págs. 11717-11718).

Colombia. — By Decree No. 893 of 29 April, 1937, the Ministry of Agriculture and Commerce may refuse permission for the import of planting material authorized by Article 6 of Decree No. 1128 of 30 June, 1931 [see this *Bulletin*, 1931, No 11, p. 207], when, in the opinion of the Chief of the 'Sanidad Vegetal' of the Department of Agriculture, import or transit in certain regions is considered inadvisable owing to the condition of the material and the possibility of danger being caused to existing crops. (*Diario Oficial*, Bogotá, 10 de julio de 1937, año LXXIII, núm. 23525, pág. 70).

United States of America. — Amendment No. 1 to the rules and regulations (fifteenth revision) supplemental to Notice of Quarantine No. 48, on account of the Japanese beetle [*Popillia japonica*], provides revision of regulations 5 and 10 concerning restrictions on the movement of fruits and vegetables, and general conditions governing inspection and issuance of certificates and permits, respectively.

The said amendement was approved and became effective on and after 10 May, 1937. (*B. E. P. Q. — Q. 48*, [Washington], 1937, 3 pp.).

Italy. — By Ministerial Decree of 7 July, 1937, the Provincial Syndicate of Fruit Cultivation at Forlì, is commissioned with the organization and supervision of the control measures to be applied to the oriental fruit moth (*Cydia* [*Laspeyresia*] *molesta*) and to be carried out at the expense of the holders of peach orchards in the communes of the Forlì Province.

The aforesaid Syndicate is also charged with the execution of the control measures at the expense of those persons not complying with the regulations or delaying in carrying out the operations. (*Bolletino ufficiale del Ministero dell'Agricoltura e delle Foreste,* Roma, 16 agosto 1937, anno IX, n. 16, pp. 1369-1370).

⁂ By Ministerial Decree of 19 July, 1937, in the province of Trieste the control of the oriental fruit moth (*C.* [*L.*] *molesta*) is rendered compulsory, this control to be carried out chiefly by collecting the infested shoots, the butts remaining after pruning and fruits, and by means of other methods which will be indicated by the Royal Phytopathogical Observatories.

The Royal Phytopathological Observatory, Trieste, will indicate the technical methods to be followed in the execution of control measures and will superintend their application, assisted in this respect by the provincial Commissioner for plant diseases.

The Provincial Syndicate of Fruit Cultivation, Trieste is charged with the organization and supervision of the control measures to be carried out at the expense of the holders of peach orchards in the communes of the province of Trieste. This same Syndicate is also commissioned with the execution of control measures at the expense of those persons not complying with the regulations or delaying in carrying out the operations. (*Ibid.*, pp. 1370-1372).

⁂ By Ministerial Decree of 20 July, 1937, the territories of the communes of Montevarchi and Bucine, Arezzo Province, have been declared infested with grape phylloxera. (*Ibid.*, p. 1372).

⁂ By Ministerial Decree of 26 July, 1937, the territory of the commune of Vallo di Lucania, Province of Salerno, has been declared infested with grape phylloxera. (*Ibid.*).

⁂ By Ministerial Decree of 30 September, 1937, the import of citrus plants into the province of Palermo is prohibited.

However, import is authorized into the said province of citrus plants purchased, through the intermediary of the Provincial Syndicate for citrus cultivation in Palermo, from nurseries situated in other provinces of Sicily and recognized as being free from 'mal secco' disease [*Deuterophoma tracheiphila*]. (*Gazzetta Ufficiale del Regno d'Italia,* Roma, 5 novembre 1937, anno 78°, n. 256, pp. 3999-4000).

Kenya (Colony and Protectorate of). — By Government Notice No. 356 of 16 April, 1937, the importation into the Colony of any rooting medium for plants which consists either wholly or in part of soil, whether or not it is attached to any plant, is prohibited. (*Supplement to the Official Gazette. Proclamations, Rules and Regulations* (*No. 15*). *Supplement No. 17,* Nairobi, April 27, 1937, Vol. XXXIX, No. 19, p. 145).

Southern Rhodesia (Colony of). — The Act No. 5, 1937, promulgated on 9 April, 1937 provides for the prevention of the spread of cotton pests by prohibiting the practices of ratooning cotton plants and of allowing cotton plants to remain in the ground from one growing season to another.

This Act may be cited for all purposes as the 'Cotton Pest Prevention Act, 1937'. (*Colony of Southern Rhodesia Governement Gazette*, Salisbury, April 9, 1937, Vol. XV, No. 14, pp. 1-2).

Uruguay. — By Decree No. 960/937 of 26 July, 1937, the regulations relative to the sanitary condition of fruits are modified and the following parasites are declared pests to national agriculture: — *Laspeyresia molesta, Aspidiotus hederæ, Mesolecanium deltae, Lecanium perinflatum, Aleurothrixus floccosus, Margarodes vitium, Sporotrichum citri, Phytophthora parasitica, Ascospora beijerinckii, Exoascus deformans, Plasmopara viticola, Gloeosporium ampelophagum, Venturia pirina, V. inaequalis* and *Uncinula necator.*

The circulation, transit and trade within national territory of plants, fruits or green parts of plants infested with one of the aforesaid 'pests to agriculture', are prohibited.

This measure shall be enforced immediately for all citrus and pomaceous fruits and shall be extended to other fruit species by resolution of the Ministry of Animal Husbandry and Agriculture, by request of the Department of Agronomy.

Every consignment of fresh fruit transported from the production centres to markets within republican territory, must be accompanied by a health certificate authorizing transport and issued by the competent authorities.

Orchards where the presence of the above-mentioned pests is reported, shall be declared 'isolated'.

This system of isolation shall be strictly applied beginning from 1 July, 1939.

From the date of this Decree up to 1 July, 1939, in orchards where the presence of these pests is reported, the fruit may only be placed on sale if complying with the following regulations.— up to 1 July, 1938, when it is estimated that 50 % of the fruits produced are free from disease; up to 1 July, 1939, when it is estimated that 70 % of the fruits produced are free from disease. From 1 July, 1939, onwards only a maximum of 5 % diseased fruit will be allowed.

In orchards declared 'isolated', no fruit may be taken outside the estate, and the Department of Agronomy shall be pleased to answer any inquiries on the said estate, or shall issue publications if considered necessary. (*Diario Oficial de la República Oriental del Uruguay*, Montevideo, 10 de agosto de 1937, tomo 128, núm. 9285, págs. 262-A y 263-A).

Yugoslavia. — A Notification of the Minister of Agriculture, dated 28 January, 1937, gives a list of the countries considered for 1937 as being contaminated by potato wart disease (*Synchytrium endobioticum*), the Colorado beetle (*Leptinotarsa decemlineata*), the potato moth (*Phthorimaea operculella*) and the San José scale (*Aspidiotus perniciosus*). (*Deutsches Handel-Archiv*, Berlin, 15. Juli 1937, 91 Jahrg., S. 2492).

RECENT BIBLIOGRAPHY

ACREE, Ruby J., and GOSS, Warren H. A microchemical colorimetric pH procedure for differentiating the telia of Cronartium ribicola and C. occidentale. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 5, pp. 347-352.

ALLEN, Merle W., and PAINTER, Reginald H. Observations on the biology of the wheat-stem maggot in Kansas. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 3, pp. 215-238, figs. 1-5. Literature cited, pp. 237-238.
[*Meromyza americana*].

ALVARADO, Juan Antonio. Enfermedades de los semilleros y almácigas de café. *Revista Agricola*, Guatemala, 1937, vol. XIV, núm. 9, págs. 470 a 472.
[*Stilbum flavidum, Corticium koleroga, Cercospora coffeicola, Colletotrichum coffeanum, Glomerella coffeicola*].

ARTHUR, J. C, and CUMMINS, George B. Philippine rusts in the Clemens collection, 1923-1926, II. *The Philippine Journal of Science*, Manila, 1936, Vol. 61, No. 4, pp. 463-488, pls. 1-4.

AUSTIN, M. D. Investigations on the insect and allied pests of cultivated mushrooms – XI. *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No 40, pp. 115-118, figs. 1-3. References, p. 118.
[*Linopodes antennaepes*].

AUSTIN, M. D, and PITCHER, R S. Investigations on the insect and allied pests of cultivated mushrooms – X. *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No 40, p. 98. Reference
[*Sciara varians*].

BALDACCI, Elio. Ricerche ed esperienze sulle malattie del riso (*Oryza sativa* L.). II. Il "brusone" non parassitario del riso. *Atti dell'Istituto Botanico dell'Università di Pavia*, Pavia, 1937, ser. IV, vol. X, pp. 3-30, figg. 1-21 Letteratura citata, pp. 28-30.
[With summaries in Italian, Latin and English].

BALDACCI, Elio. Ricerche intorno ad una infezione del *Ricinus communis* attribuita a *Fusarium ricini* (Bérenger) Bizz. *Atti dell'Istituto Botanico dell'Università di Pavia*, Pavia, 1937, ser. IV, vol. X, pp. 37-49, fig 1. Bibliografia, p 49.
[With summaries in Italian, Latin and English]

BALDACCI, Elio. Un nuovo genere di micete parassita del pioppo, *Pollaccia radiosa* (Lib) Baldacci e Ciferri. Revisione dei g. *Stigmella* e *Stigmina*. *Atti dell'Istituto Botanico dell'Università di Pavia*, Pavia, 1937, ser. IV, vol. X, pp. 55-74, figg. 1-5.
[With summaries in Italian, Latin, and English. — *Fusicladium radiosum* = *Pollaccia radiosa*]

BARTH. Das Auftreten zweier Speckkäferarten (*Dermestes vulpinus* Fbr. und *peruvianus* Lap.) als Kakaoschädlinge. *Anzeiger für Schädlingskunde*, Berlin 1937, XIII. Jahrg, Heft 4, S. 56. Schrifttum.

BENATAR, Rubens. Sobre una nova mancha em epicarpo de "Citrus sinensis" Osbeck causada pelo Phoma Puttemansi n. sp. *Rodriguésia*, Rio de Janeiro, 1937, anno II, nº 7, pags. 306-313, figs. 1-6. Litteratura citada, pags. 312-313.
[The Latin diagnosis of the new species is appended].

Birmingham, W. A. soft or deep-scald of apples. *The Agricultural Gazette of New South Wales*, Sydney, 1937, Vol. XLVIII, Pt. 7, pp. 397 and 406, figs. 1-2. [A non-parasitic trouble].

Borzini, G[iovanni]. Sul comportamento di alcune varietà di peri inoculate con lo "Stereum purpureum" Pers. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser., n. 2, pp. 201-205, figg 1-2.

Borzini, G[iovanni]. Su di un attacco di "Sclerotinia libertiana" Fuck. in piante di finocchio e sul parassitismo della stessa in associazione con altri funghi. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n ser., n. 2, pp. 225-266, figg. 1-14. Note bibliografiche, pp 264-266 [*Sclerotinia libertiana*, associated with two indetermined species of *Pythium* as well as with *Phytophthora parasitica* and *Phyt. citrophthora* on *Foeniculum vulgare*].

Bovey, Paul. Recherches sur le carpocapse des prunes, *Laspeyresia* (*Grapholitha*) *funebrana*, Tr. *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, n^{os} 3-4, p. 189-317, fig 1-59, pl. I-IX Bibliographie, p. 311-315.

Bowman, D. H., **Martin**, J H., **Melchers**, L. E, and **Parker**, John H. Inheritance of resistance to Pythium root rot in sorghum *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 2, pp 105-115, figs 1-4. [*Pythium arrhenomanes*].

Braun, H. Kurze Anleitung zur Erkennung und Bekampfung der wichtigsten Unkräuter. Berlin, Verlag von Paul Parey, 1937, 75 S, 70 Abb.

Brown, H. P. Mushroom bed invaders Their habits and the means of control. *The Agricultural Gazette of New South Wales*, Sydney, 1937, Vol. XLVIII, Pt. 8, pp. 436-439, figs. 1-6. References, p. 439. [*Mycogone perniciosa*, *Verticillium* sp., *Monilia fimicola*, *Papulaspora byssina*, *Coprinus* sp., *Pseudobalsamia microspora*, *Clitocybe dealbata*, *Xylaria vaporaria*].

Caldwell, Ralph M. Rhynchosporium scald of barley, rye, and other grasses. *Journal of Agricultural Research*, Washington, D. C, 1937, Vol. 55, No. 3, pp. 175-198, fig. 1-4, pls. 1-4. Literature cited, p 198 [*Rhynchosporium secalis* (Oud) Davis, on barley, rye and other grasses, *Rhynch orthosporium* n. sp. on *Dactylis glomerata* The Latin diagnosis and a description in English are given of this latter species].

Calvino, Mario. Per risanare i terreni invasi dai nematodi. *La Costa Azzurra Agricola Floreale*, Sanremo, 1937, anno XVII, n 10, pp. 221-223, 1 fig

Candura, G. S. Cause d'insuccessi nella lotta invernale contro le cocciniglie dei fruttiferi. Tre anni di sperimentazione nella Venezia Tridentina. *L'Italia Agricola*, Roma, 1937, anno 74, n. 10, pp 727-736, figg 1-3. [*Diaspis leperii* and *Aspidiotus ostraeformis*].

Carter, Walter. The toxic dose of mealy-bug wilt of pineapple. *Phytopathology* Lancaster, Pa., 1937, Vol. 27, No. 10, pp. 971-981. [*Pseudococcus brevipes*].

Cartwright, K. T. St G. A reinvestigation into the cause of "brown oak", *Fistulina hepatica* (Huds.) Fr. *Transactions British Mycological Society*, London, 1937, Vol. XXI, Pts. I & II, pp. 68-83, figs 1-6, pls. I-VII. References, p 83

Casaletti Arancibia, Carlos. La acción de las sales de cobre y del azufre en la vegetación. Caldo borgoñes-Caldo bordelés. *Boletín de Agricultura y Ganadería*, Córdoba, 1937, año XIII, mayo-junio de 1937, págs. 36 y 37

CHAPMAN, H. D., **VANSELOW**, A. P., and **LIEBIG**, Jr., George F. The production of citrus mottle-leaf in controlled nutrient cultures. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 5, pp. 365-379, figs. 1-6. Literature cited, pp. 378-379.
[This disease is a manifestation of zinc deficiency].

CHEN, Fong Ge Four new Coccids from Chekiang. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. V, No. 19, pp 382-388, pls I-III.
[*Matsucoccus sinensis* n sp. on *Pinus* sp., *Euphilippia aquifoliae* n. sp on *Osmanthus aquifolium*, *Pseudoulacaspis kwangyensis* n. sp. on an unknown tree, and *Lepidosaphes pinicolus* n sp on *Pinus* sp.].

CHERIAN, M. C., and **ISRAEL**, P. Studies on *Elasmus zehntneri*, Ferr., a parasite of the sugarcane white moth borer (*Scirpophaga*). *The Madras Agricultural Journal*, Coimbatore, 1937, Vol. XXV, No. 9, pp. 273-279.

CHERNYSHEV, P. Forecasting and regional distribution of warehouse pests. *Plant Protection*, Leningrad, 1937, No. 13, pp. 71-73.
[In Russian, with title also in English]

CHESTER, K. Starr. Serological studies of plant viruses. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 9, pp. 903-912. Literature cited, p. 912.

CHIESA MOLINARI, O. Tuberculosis del olivo (Bacterium Savastanoi, Smith). *Boletín de Agricultura y Ganadería*, Córdoba, 1937, año XIII, mayo-junio de 1937, págs. 2 a 4, figs 1-3

CHIN, Meng hsiao Biology of the bamboo Zygaenid, *Artona funeralis* Butler, in Hangchow. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. V, No 17, pp. 336-345, 5 figs.
[In Chinese, with title and summary also in English]

CHRISTIE, J. R. Mermis subnigrescens, a nematode parasite of grasshoppers. *Journal of Agricultural Research*, Washington, D. C, 1937, Vol 55, No. 5, pp 353-364, figs. 1-6
[The species of grasshoppers infested by *Mermis subnigrescens* are *Arphia sulphurea, Camnula pellucida, Chorthippus longicornis, Chortophaga viridifasciata, Conocephalus brevipennis, Encoptolophus sordidus, Melanoplus bivittatus, M femur-rubrum, M mexicanus, Orphulella pelidna, Romalea microptera*

CHUGUNIN, J. Testing pyrethrum as a means of codling moth control *Plant Protection*, Leningrad, 1937, No. 13, pp 73-75.
[In Russian, with title also in English – *Cydia pomonella*]

COOK, W R. Ivimey, and **COLLINS**, W. B. A Pythium wilt of Primula caused by *Pythium spinosum*, Sawada *Transactions British Mycological Society*, London, 1937, Vol XXI, Pts. I & II, pp. 29-33, figs. 1-7 References, p 33

D'ANCONA, Cesare L'azione del boro sulle piante. Cenni di ordine bibliografico e critico. *Annali di Tecnica Agraria*, Roma, 1937, anno X, fasc. IV-VI, pp. 228-247. Bibliografia, pp 246-247.
[With title and summary also in Latin].

DA SILVEIRA GRILLO, Heitor V. Relatorio sobre a murcha do algodoeiro, causada pelo "Fusarium vasinfectum" Atk. no Estado da Parahyba. *Rodriguésia*, Rio de Janeiro, 1937, anno II, nº 7, págs. 319-327, photogr 1-8. Bibliographia, pag. 327.

DAVIES, Cornelius, and **SMYTH-HOMEWOOD**, G. R. B. Investigations on machinery used in spraying Part IV. Nozzles *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No. 40, pp. 50-57, figs. 1-9. References, p. 57.

Davis, Luther D. The gumming of Phillips Cling peaches. *Hilgardia*, Berkeley, California, 1937, Vol. 11, No. 1, pp. 1-34, figs. 1-22. Literature cited, p. 34. [A disease of probable physiological nature].

de Haan, Johan Theodoor. Untersuchungen über das Auftreten der Keimlings-Fusariose bei Gerste, Hafer, Mais und Reis. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 3, S. 235-305, Abb. 1-28. Schriftenverzeichnis, S. 302-305.
[*Fusarium herbarum*, *F. culmorum*, *F. moniliforme*].

Deshpande, V. G Important insect pests of sugarcane in the Bombay Presidency. *Current Science*, Bangalore, 1937, Vol. VI, No. 1, pp. 33-35.
[*Hieroglyphus banian* var. *elongata*, *Trionymus sacchari*, *Aleurolobus barodensis*, *Pyrilla aberrans*, *Termites* sp., *Phyllognathus dionysius*, *Emmalocera depressella*, *Chilo zonellus*, *Argyria sticticraspis*, *Procometis trochala*].

Drake, C. J., and Decker, G. C. The grasshopper situation in Iowa *Journal of Economic Entomology*, Menasha, Wisconsin, 1937, Vol. 30, No. 4, pp. 618-621.
[*Melanoplus mexicanus*, *M. bivittatus*, *M. femur-rubrum*, *M differentialis*, *Ageneotettix deorum*, *Orphulella speciosa*, *Dissosteira carolina*, *Hippiscus* spp., *Chortophaga viridifasciata*, *Schistocerca americana*, *S. lineata*].

Fahmy, Tewfik. Cotton diseases. *International Cotton Bulletin*, Manchester, 1937, Vol. XV, No 59, pp. 396-401.
[The diseases that attack cotton in Egypt are the following sore-shin (*Corticium vagum*), wilt (*Fusarium vasinfectum*), and angular leaf spot (*Bacterium malvacearum*)].

Fawcett, H. S., Grillo, H. V. S., Bitancourt, A. A, e Müller, A. S Relatorio sobre as doenças dos Citrus no Districto Federal, Estado do Rio de Janeiro e Minas Geraes. *Rodriguésia*, Rio de Janeiro, 1937, anno II, nº 7, págs 329-334.

Franco, Alcides, e Ferreira, Castaño. A podridão peduncular das laranjas. Estudo estatistico sobre o emprego do borax e da tesoura. *Rodriguésia*, Rio de Janeiro, 1937, anno II, nº 7, pags 295-300

Franssen, C. J. H. Biologie en bestrijding van een drietal schadelijke fruitvliegen *Landbouw*, Buitenzorg 1937, XIII jaarg, no 5, blz. 221-238, fig. 1-11. Literatuur, blz. 236-237
[In Dutch, with title and summary also in English - 'Biology and control of three noxious fruit flies in Java' — *Dacus ferrugineus*, *D. umbrosus*, *D. cucurbitae*].

Frappa, C[laude]. Les plantes à roténone Gouvernement général de Madagascar et Dépendances. *Bulletin Economique*, Tananarive, 1937, nouv. sér, nº 9, p 61-71. Bibliographie, p. 70-71

Frappa, C[laude]. Le sphinx des feuilles du caféier à Madagascar. Gouvernement général de Madagascar et Dépendances *Bulletin Economique*, Tananarive, 1937, nouv. sér., nº 9, p. 72-74. Bibliographie, p. 74.
[*Cephonodes hylas*].

Frappa, Cl[aude]. Le sphinx des feuilles du caféier à Madagascar. *Revue de Pathologie végétale et d'Entomologie agricole de France*, Paris, 1937, tome XXIV, nºs 3-4, p. 318-323. Bibliographie, p. 323.
[*Cephonodes hylas*].

Fron, G. Nouvelles observations sur la maladie du piétin des céréales (campagne 1937). *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris 1937, tome XXIII, nº 25, p. 79[illegible]-800, 1 fig.
[*Cercosporella herpotrichoides*].

GABOTTO, L[uigi]. La campagna peronosporica di quest'anno. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1937, anno 83° e 63°, n. 19, pp. 381-383. [*Plasmopara viticola*].

- GADD, C. H. Compost and disease. *The Tea Quarterly*, St. Coombs, Talawakelle, 1937, Vol. X, Pt. II, pp. 93-100. References, p. 100.

GERBALDI, Costanzo. Ricerche ed opinioni sulla soluzione del problema della moria dell'olmo. *La Romagna Agricola e Zootecnica*, Ravenna, 1937, anno XXXI, n. 20, pp. 2-3.
[After having summarized the results obtained in recent experimental work in Italy on the elm disease (*Graphium ulmi*), the A. points out the advantages of artificial props (especially cement poles) as supports for the grape vine, in substitution of elm trees, which have died as a result of the disease; such artificial props have only one serious disadvantage, and that is, their cost].

GHILAROV, M. Factors determining injuriousness of the soil pests and their significance for the cultivation of the rubber-bearing plants. *Plant Protection*, Leningrad, 1937, No. 13, pp. 41-53. [Literature], pp. 51-52.
[In Russian, with title and summary also in English — *Agriotes sputator, A. gurgistanus, Selatosomus latus, Opatrum sabulosum, Omophlus* spp, *Podonta daghestanica, Anisoplia austriaca, A. segetum, Pentodon idiota, Amphimallus solstitialis* injurious to *Taraxacum kok-saghyz* and *Scorzonera tau-saghyz*]

GHILAROV, M. S. Root aphids and ants affecting rubber producing plants. *Bulletin of Entomological Research*, London, 1937, Vol 28, Pt. 3, pp 470-482, fig. 1. References, p 482

GIGANTE, R[oberto]. Ricerche istologiche sulle omeoplasie crestiformi (enations) delle foglie di vite affette da rachitismo. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser., n. 2, pp 169-192, figg. 1-14, tav IV. Bibliografia, pp. 190-191.

GOIDÀNICH, G[abriele] Notizie su una malattia della vite poco conosciuta *Rendiconti della R. Accademia Nazionale dei Lincei*, Classe di Scienze fisiche, matematiche e naturali, Roma, 1937, vol. XXVI, ser. 6ª, 2° sem., fasc. 3-4, pp. 107-112, figg. 1-3.
[*Phomopsis viticola* (Redd.) G Goid. n. comb. near Trieste]

GOIDÀNICH, Gabriele. Sulle specie di "Alternaria" che producono il "nerume" del cavolfiore in Italia. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n ser., n. 2, pp. 193-200, fig. 1.
[*Alternaria brassicae* (Berk) Bolle and *A. circinans* (Berk. et Curt) Bolle].

GOIDÀNICH, Gabriele. I più recenti risultati degli studi e i nuovi indirizzi delle ricerche sulla grafiosi dell'olmo in Italia e all'estero. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n. ser., n. 2, pp. 206-224. [*Graphium ulmi*].

GÓMEZ-MENOR [O.], Juan Instrucciones para reprimir la enfermedad "Panama" en los plátanos, guineos y rulos. *Revista de Agricultura*, Ciudad Trujillo, República Dominicana, 1937, vol. XXVIII, núm. 93, pág. 276.
[*Fusarium cubense*].

GÓMEZ-MENOR O., Juan. Instrucciones generales para combatir las principales plagas de orugas (gusanos) que atacan al arroz y la yuca. *Revista de Agricultura*, Ciudad Trujillo, República Dominicana, 1937, vol. XXVIII, núm. 94, pág. 366.
[*Laphygma frugiperda, Dilophonota ello*].

GOODWIN, W., PIZER, N. H., SALMON, E. S., and WARE W. M. The control of apple scab: Allington Pippin and Newton Wonder, 1936. *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No. 40. pp. 9-17.
[*Venturia inaequalis*].

GREEN, E. L., and GOLDSWORTHY, M. C. The copper content of residues from sprays containing adjuvants. *Phytopathology*, Lancaster, Pa, 1937, Vol 27, No. 10, pp. 957-970. Literature cited, p. 970.

GREIG, J. L. The use of chemicals for the eradication of lalang grass. *The Malayan Agricultural Journal*, Kuala Lumpur, 1937, Vol. XXV, No 9, pp. 363-369, 1 pl. Bibliography, p. 369.
[*Imperata arundinacea*].

GRIVANOV, K. On the number of generations of Euxoa segetum Schiff. in the southern wooded-steppe of the Ukraine *Plant Protection*, Leningrad, 1037, No 13, pp. 56-59. [Literature], p. 59.
In Russian, with title also in English]

GRODSINSKY, León. Manifestación foliar del Ustilago tritici *Revista Argentina de Agronomía*, Buenos Aires, 1937, tomo 4, nº 1, págs. 71 y 72, 1 fig.

GUERRERO Y CARVAJAL, Fco Enfermedades que atacan al tabaco *Revista de Agricultura*, Ciudad Trujillo, República Dominicana, 1937, vol. XXVIII, núm. 94, págs 320 y 321.
Bacterium solanacearum, *Fusarium* sp., *Phytophthora* sp., mosaic, etc.].

GUSSEV, V Contribution to the ecology of bark-borers on the Caucasian Black Sea coast. *Plant Protection*, Leningrad, 1937, No. 13, pp. 60-68.
In Russian, with title and summary also in English - *Scolytidae*]

GUTIERREZ, Herminio P. Sunchillo o flor de sapo (*Wedelia glauca* Hoffm). *Anales de la Sociedad Rural Argentina*, Buenos Aires, 1937, año LXXI, vol LXXI, nº 7, págs. 517 a 519, 3 figs.
A weed]

HARGREAVES, E Some insects and their food-plants in Sierra Leone. *Bulletin of Entomological Research*, London, 1937, Vol 28, Pt. 3, pp. 505 520.

HARLAND, Sydney Cross. A note on two larval parasites of the sugar-cane moth-borer in São Paulo, Brazil. *Scientific Agriculture*, Trinidad, B. W. I, 1937, Vol XIV, No 10, p 280. .
Metagonistylum minense and *Paratheresia brasiliensis* as parasites of *Diatraea* .

HARRIS, W. Victor. Annotated list of insects injurious to native food crops in Tanganyika. *Bulletin of Entomological Research*, London, 1937. Vol. 28, Pt. 3. pp. 483-488.

HENDRICKX, Fred-L. Sur l'antagonisme existant entre une bactérie et l'agent (*Ophiostoma ulmi* (Schwarz) Nannfeldt, de la maladie de l'orme (*Ulmus* sp.) *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1937, tome CXXVI, nº 24, p. 99-100.
[The bacterium in question resembles *Pseudomonas lignicola*

HENSON, Lawrence, and WALLEAU, W. D. Sclerotium bataticola Taubenhaus, a common pathogen of red clover roots in Kentucky. *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No. 9, pp. 913-918, figs. 1 2 Literature cited, pp. 917-918.

HILL, C. C., and EMERY, V. T. The biology of Platygaster herrickii, a parasite of the hessian fly. *Journal of Agricultural Research*, Washington, D C., 1937, Vol. 55, No. 3, pp. 199-213, figs. 1-11. Literature cited, p 213
[*Platygaster herrickii*, a parasite of *Phytophaga destructor*].

Hodson, W. E. H. On the synonymy and biology of the strawberry aphis, *Capitophorus fragariae*, Theo. (1912). *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 3, pp. 409-416, pls. X-XI, References, p. 416.

Horovitz, S. Resistencia del maíz « amargo » al ataque por la langosta. *Revista Argentina de Agronomía*, Buenos Aires, 1937, tomo 4, nº 1, págs. 27 a 38, figs. 1-6.

James, H. C. Sex ratios and the status of the male in Pseudococcinae (Hem. Coccidae). *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 3, pp. 429-461. References, p. 461.

Jannone, Giuseppe. Importanza dell'organo copulatore maschile nella speciografia del gen. *Calliptamus* Serv. e ridescrizione del *C. okbaensis* Kheil (*Orth. Acrididae*) dell'Africa settentrionale. *Annali del Museo Civico di Storia Naturale di Genova*, Genova, 1937, vol. LIX, pp 479-493, figg. I-V. Bibliografia, pp. 492-493.

Jary, S. G. Tests of insecticides against *Anthonomus rubi* (Herbst). *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No. 40, pp. 134-147. References, p. 147.

Jary, S. G., and **Austin**, M. D. "Meta-fuel" and slug control. *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No. 40, pp. 183-186. Reference

Jary, S. G., **Martin**, J. T., and **Tattersfield**, F. The artificial drying of pyrethrum flowers *The Journal of the South-Eastern Agricultural College*, Wye Kent, 1937, No. 40, pp. 108-114, 1 fig References, p. 114

Jary, S. G., and **Stapley**, J H. Investigations on the insect and allied pests of cultivated mushrooms - IX *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No. 40, pp. 110-129, figs 1-5. References, p. 124. [*Tyroglyphus dimidiatus* (*longior*)]

Johnson, James, and **Hoggan**, Ismé A. The inactivation of the ordinary tobacco-mosaic virus by microorganisms. *Phytopathology*, Lancaster, Pa, 1937, Vol. 27, No. 10, pp. 1014-1027, fig. 1. Literature cited, p. 1027.

Johnston, John R. Los hongos "royas" en Guatemala *Revista Agrícola*, Guatemala, 1937, vol. XIV, núm. 9, págs. 473 a 478

[*Puccinia rubigo-vera*, *Uromyces phaseolorum*, *U. striatus*, *Tranzschelia punctata*; *Phragmidium disciflorum*].

Kalinenko, V. O. Immunity shifts in *kok-saghyz in vitro* *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 3, S. 332-337, Fig. 1-5. List of references, S. 337.

[*Taraxacum kok-saghyz*].

Katznelson, H. Bacteriophage in relation to plant diseases. *The Botanical Review*, Lancaster, Pa., 1937, Vol. 3, No. 10, pp. 499-521. Bibliography, pp. 518-521.

Kent, G. C. Some physical, chemical, and biological properties of a specific bacteriophage of Pseudomonas tumefaciens. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 9, pp 871-902. Literature cited, pp. 900-902.

Kienholz, J. R. Isolating single spores without special equipment. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 9, pp. 950-951, fig. 1.

Koidsumi, Kiyoaki. Experimental studies on the influence of low temperatures upon the development of fruit-flies (8th Report). On the fatal action of low temperatures upon the pupae of *Chaetodacus ferrugineus* var. *dorsalis* Hendel. *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1937, Vol. IX, No. 1, pp. 54-59.

[In Japanese, with title also in English].

KOIDSUMI, Kiyoaki. Experimental studies on the influence of low temperatures upon the development of fruit-flies (9th Report). On the acclimation to low temperatures in the melon-fly pupae. *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1937, Vol. IX, No. 2, pp. 236-240.
[In Japanese, with title also in English].

KOHLER, E. Ueber eine äusserst labile Linie des X – Mosaikvirus der Kartoffel. *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 5, S. 467-479, Abb. 1-6.

LEACH, J. G., ORR, L. W., and CHRISTENSEN, Clyde. Further studies on the interrelationship of insects and fungi in the deterioration of felled Norway pine logs. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 2, pp. 129-140, figs. 1-8.
[*Peniophora gigantea, Monochamus scutellatus, M. notatus, Chrysobothris dentipes, Chalcophora virginiensis* on *Pinus resinosa*].

LEITZKE, Benno. Infektionsversuche mit Haferflugbrand - Sporen - Gemischen. *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 5, S 504-553, Abb 1-4. Schriftenverzeichnis, S. 553.
[*Ustilago avenae*].

LEWIS, Esther A. Some fungous diseases of Clarkia elegans. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 9, pp. 951-953

LIN, Shih-Cheng. An experimental study on the controlling of pear rust (Gymnosporangium Haraeanum Syd.) by spraying different fungicides. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1937, Vol. V, No. 19, pp 301-306
[In Chinese, with title also in English].

MACOLA, Tulio. Algunas indicaciones sobre modalidades y medios de lucha contra el "gusano del duraznero" (Laspeyresia molesta, Busck) *Boletín de Agricultura y Ganadería*, Córdoba, 1937, año XIII, mayo-junio de 1937, págs. 29 a 31, 1 fig.

MAGERSTEIN, Vincenz. Verzweigung der Weidenruten durch Insektenbefall *Die kranke Pflanze*, Dresden 1937, 14. Jahrg., Heft 9 S. 150-152, Abb. 1-4.
[*Earias chlorana, Rhabdophaga rosaria*].

MALENOTTI, Ettore. Osservazioni sulle schiusure della piralide del mais *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n 43, p. 365, figg 1 3.
[*Pyrausta nubilalis*].

MAMELI CALVINO, Eva. Heterodera marioni ospite di Lavandula vera. *La Costa Azzurra Agricola Floreale*, Sanremo, 1937, anno XVII, n 10, pp. 227 228

MAMELI CALVINO, Eva. Diffusione della Puccinia Antirrhini in Italia. *La Costa Azzurra Agricola Floreale*, Sanremo, 1937, anno XVII, n 10, pp. 228 230, 2 figg

MAMELI CALVINO, Eva. Il pericolo dell'invasione della Doryphora delle patate *La Costa Azzurra Agricola Floreale*, Sanremo, 1937, anno XVII, n. 10, pp 231-234, 1 fig
[*Leptinotarsa decemlineata*].

MANEVAL, Willis E. A list of Missouri fungi with special reference to plant pathogens and wood-destroying species. *The University of Missouri Studies*, Columbia, Missouri, 1937, Vol. XII, No. 3, pp 1-150 Bibliography, pp. 120-150

MANIL, Paul, et GRATIA, André. Transmission du virus de la mosaique du tabac à l'Orobanche, plante parasite dépourvue de chlorophylle *Compte rendus des séances de la Société de Biologie et de ses filiales et associées* Paris, 1937, tome CXXVI, nº 24, p. 67-69.

MARSHALL, Guy A. K. New injurious Curculionidae (Col.). *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 3, pp 469-477, fig. 1, pl XII
[*Blosyrus ipomoeae* n. sp. on sweet potatoes (South Rhodesia), *Inaleurops cuthbertsoni* n. gen. et n. sp. on tobacco, cowpea and sunn hemp (S Rhodesia)

Naupactus bondari n. sp. on cacao (Brazil); *Eremnus angustirostris* n. sp. on maize (Orange Free State); *E. angustirostris articollis* n. subsp. (Transvaal); *Promecopsis canavaliae* n. sp. on *Canavalia ensiformis* and *Erythrina* (Brazil). *Brachycerus citriperda* n. sp. on citrus (Natal), *Amorphoidea pectoralis* n. sp. on cotton (Java), *Conotrachelus licaniae* n. sp. on *Licania rigida* (Brazil); *Catagmatus clematidis* n. sp. on *Clematis* (Sumatra); *Ocladius dianthi* n. sp. on carnations (Union of South Africa), *Thegilis theobromae* n. sp. on cacao (Brasil). — Description in English].

MASSEE, A. M. An Eriophyid mite injurious to tomato. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 3, p. 403.
[*Phyllocoptes lycopersici* n. sp. in Queensland and New Zealand. — Description in English].

MATKOVSKY, S. New achievements in the control of Bruchus pisorum L. *Plant Protection*, Leningrad, 1937, No. 13, pp. 83-86.
[In Russian, with title also in English].

MATSUMOTO, Takashi, and OKABE, Norio. Bacteriophage in relation to Bacterium solanacearum. II. Further studies on the phage and antiphagic serum. *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1937, Vol IX, No. 2, pp. 205-213. Literature cited, p. 213

MCLEAN, Ruth, WOLF, Frederick A., DARKIS, F. R., and GROSS, P. M. Control of downy mildew of tobacco by vapors of benzol and of other organic substances. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 10, pp. 982-991, figs. 1-3. Literature cited, p. 991
[*Peronospora tabacina*]

MEADLY, G. R. W. Wild Verbena or purple top (*Verbena bonariensis* Linn.) *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol. 14 (Second Series), No. 2, pp. 130-131, 1 pl.

MIELKE, J. L., CHILDS, T. W., and LACHMUND, H. G. Susceptibility to Cronartium ribicola of the four principal Ribes species found within the commercial range of Pinus monticola. *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 5, pp. 317-346, figs. 1-6. Literature cited, pp. 345-346
[*Ribes petiolare*, *R. inerme*, *R. viscosissimum*, *R. lacustre*].

MILAN, A. La carie del grano sul Mentana. *Giornale di Agricoltura della Domenica*, Roma, 1937, anno XLVII, n. 43, p. 369.
[*Tilletia tritici*, *T. levis*].

MINISTRY OF AGRICULTURE, EGYPT. CROP PROTECTION SECTION. PLANT QUARANTINE SUB-SECTION. List of insect pests, fungus and other diseases prohibited entrance into Egypt. *Leaflet No. 26*, Cairo, 1937, 6 pp.

MOORE, Elizabeth Jane. Carbon and oxygen requirements of the cotton root-rot organism, Phymatotrichum omnivorum, in culture. *Phytopathology*, Lancaster, Pa., 1937, Vol. 27, No. 9, pp. 918-930. Literature cited, p. 930.

MORGAN, E. T. The need for dipping seed potatoes for the control of Rhizoctonia. *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol. 14 (Second Series), No. 2, pp. 128-130. Reference, p. 130.

MORITZ, O. Neuere biochemische und serologische Arbeiten auf dem Gebiet der pflanzlichen Viruskrankheiten (Sammelreferat). *Phytopathologische Zeitschrift*, Berlin 1937, Bd. X, Heft 5, S. 554-558. Schriftenverzeichnis, S. 558.

MORQUER, R. Etudes biologiques sur les associations fongiques. Coexistence de champignons viticoles sur le même hôte. Hypocréacées. *Revue générale de Botanique*, Paris, 1937, tome XLIX, n° 585, p. 558-594, fig. 1-20; n° 586, p. 619-636, fig. 21-24. Bibliographie, p. 633-636.

Morris, K. R. S., Cameron, E., and Jepson, W. F. The insect parasites of the spruce sawfly (*Diprion polytomum*, Htg.) in Europe. *Bulletin of Entomological Research*, London, 1937, Vol. 28, Pt. 3, pp. 341-393, figs. 1-20. References, pp. 392-393.

Newman, L. J. Grasshopper pest. Poison bait formula. *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol. 14 (Second Series), No. 2, p. 186.

Orian, G. Notes préliminaires sur une maladie du palmier à Maurice, causée par le *Bacterium vasculorum* (Cobb) Gr. Smith. *La Revue Agricole de l'Ile Maurice*, Maurice, 1937, nº 93, p. 100-101.
[*Bact. vasculorum* on *Dictyosperma album*].

Orian, G. Un nouvel hôte du *Bacterium vasculorum* (Cobb) Gr. Smith, à Maurice. *La Revue Agricole de l'Ile Maurice*, Maurice, 1937, nº 94, p. 130-131.
[*Thysanolaena maxima*]

Orth, H. Untersuchungen uber die Biologie und Bekämpfung des Erregers der Bakterienwelke der Tomaten (Bact. michiganense E. F. S.) *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt., Jena 1937, 96 Bd., Nr. 20/23, S. 376-402, Abb 1-9. Schriftenverzeichnis, S. 400-401

Orton, C. R., and Hill, L. M. An undescribed potato disease in West Virginia *Journal of Agricultural Research*, Washington, D. C., 1937, Vol. 55, No. 2, pp. 153-157, pls 1-6.
The origin and etiology of this disease are unknown.

Parfentyev, V Zeuzera pyrina L. in Kamyshin, Saratov region. *Plant Protection*, Leningrad, 1937, No 13, pp. 76-80. [Literature], p. 80
In Russian, with title also in English.

Patay, R Sur la régénération des pattes chez le coléoptère chrysomélide *Leptinotarsa decemlineata* Say. *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1937, tome CXXVI, nº 26, p 283-285

Pittman, H A. Take-all and similar diseases of wheat and how to control them *Journal of the Department of Agriculture of Western Australia*, Perth, 1937, Vol 14 (Second Series), No 2, pp. 103-112, figs 1-4.
Ophiobolus graminis, Helminthosporium sativum]

Pustovoyt, A. The control of Apion apricans Hbst by means of ditches. *Plant Protection*, Leningrad, 1937, No. 13, pp 80-83
In Russian, with title also in English.

Quintanilla, R. El escarabajo del pepino *Revista de Agricultura*, Ciudad Trujillo República Dominicana, 1937, vol XXVIII, núm 94, pág 366
[*Diabrotica vittata*]

Reckendorfer, Paul Die chemischen Grundlagen der Wirkungsweise der Schwefelkalkbruhe. *Phytopathologische Zeitschrift*, Berlin 1937, Bd X, Heft 3, S. 306-331. Schriftenverzeichnis, S. 330 331

Regnard, P Mission entomologique à Madagascar en 1936 *La Revue Agricole de l'Ile Maurice*, Maurice, 1937, nº 93, p 93-96
For the study of the parasites of different insects injurious to crops in Mauritius]

Rolfe, Sholto W. Notes on Diplopoda IV. The recognition of some millipedes of economic importance. *The Journal of the South Eastern Agricultural College*, Wye, Kent, 1937, No. 40, pp 99-107, figs 1-21 References, p 107
[*Polydesmus* spp., *Brachydesmus superus mosellanus Paradesmus gracilis Cylindroiulus* spp., *Tachypodoiulus niger, Ophyiulus pilosus, Blaniulus guttatus, Archiboreoiulus pallidus, Choneiulus palmatus*]

Rombouts, João. Una molestia de "Eucalyptus" e de "Populus", na Bahia, causada por "Corticium salmonicolor" B. et Bred. *Rodriguésia*, Rio de Janeiro, 1937, anno II, nº 7, pags. 301-305, 2 figs. Literatura citada, pag. 305.

Rui, Dino. Relazione sul funzionamento degli Osservatori antiperonosporici della provincia di Treviso Annata 1936. *Annuario della R. Stazione Sperimentale di Viticoltura e di Enologia di Conegliano*, Treviso, 1937, vol. VII (1936-1937), pp. 397-421, figg 1-3.
[*Plasmopara viticola*]

Salmon, E. S, and Ware, W. M. The honey fungus (*Armillariella mellea*) attacking fruit trees and hops, with observations on *Pholiota squarrosa* in cherry orchards *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No. 40, pp. 18-26, figs 1-6.

Salmon, E. S, and Ware, W M. The downy mildew of the hop in 1936. *The Journal of the South-Eastern Agricultural College*, Wye, Kent, 1937, No 40, pp. 27-36, figs. 1-2
[*Pseudoperonospora humuli*]

Samuel, G, and Greaney, F. J Some observations on the occurrence of *Fusarium culmorum* on wheat *Transactions British Mycological Society*, London, 1937, Vol XXI, Pts I & II, pp 114-117. References, p 117

Santini, P. Contribution d'un médecin à l'étude du bayoudh, maladie du palmier-dattier *Archives de l'Institut Pasteur d'Algérie*, Alger, 1937, tome XV, nº 2, p 271-276, pl XXI
[*Fusarium albedinis* accompanied by *Thielaviopsis paradoxa*]

Savage, C G, and Broadfoot, H Internal cork of apples Soil dressing of borax give excellent results *The Agricultural Gazette of New South Wales*, Sydney, 1937, Vol XLVIII, Pt 7, pp 387-390, figs 1-4, references, p 370, Pt 8, pp 447-452, figs 5-12

Savelli, M Contro la "moria dell'olmo". Breve relazione sui mezzi di lotta sperimentati e sui risultati ottenuti *Stazione Agraria "A Mussolini" Forlì Attività dell'Istituto nel triennio 1934-1936*, Forlì 1937, pp 149 166, figg 1 11
[*Graphium ulmi*]

Savelli, M, [e] Carloni, L Trattamenti cuprici sulla bietola da zucchero *Stazione Agraria "A Mussolini" Forlì Attività dell Istituto nel triennio 1934 1936*, Forlì, 1937, pp 105-121
For the control of *Cercospora beticola*]

Schultz, Helmut Zur Biologie der *Bremia lactucae* Regel, des Erregers des Falschen Mehltaus des Salats *Phytopathologische Zeitschrift*, Berlin 1037, Bd X Heft 5, S 490-503, Abb 1-10 Schriftenverzeichnis, S 503

Serdyukov, P Results of widespread distribution of Aphelinus mali as a means of Eriosoma lanigerum control in the North Causasus *Plant Protection*, Leningrad, 1937, No 13, pp 69-71
[In Russian, with title also in English

Shibata, Kikuo Relation between lemon-fruit and damage of mango-fly (orange-fly), *Chaetodacus ferrugineus* var *dorsalis* Hendel *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1937, Vol IX, No. 1, pp. 60-68, 2 figs.
In Japanese, with title also in English]

Sibilia, Cesare Esperienze di lotta diretta contro le ruggini del grano con "Asporital" D'Amico nel 1937 *Bollettino della R Stazione di Patologia vegetale*, Roma, 1937, anno XVII, n ser., n. 2, pp 267-272, 1 fig.
It is shown by these experiments, that dusting carried out with the new preparation of signor A D'Amico, called 'Asporital', prevents, even in the presence

of slight attacks of rust, practically all the losses caused by *Puccinia* spp. According to the A., further experiments are necessary to ascertain the action which 'Asporital' may have on the fungal flora of the soil. 'Asporital' is effective against weeds].

SINGH, B. N., and MATHUR, P. B. Negative correlation between the occurrence of polyphenol oxidase and diastase and the degree of incidence of "black-heart" of potato. *Phytopathology,* Lancaster, Pa, 1937, Vol 27, No. 10, pp. 992-1000. Literature cited, p. 1000.
[A physiological disease of potato tubers]

SMEE, C. Notes on the development of red locust hoppers (*Nomadacris septemfasciata,* Serv.) under natural climatic conditions. *Bulletin of Entomogical Research,* London, 1937, Vol 28, Pt. 3, pp 417-427, figs. 1-9 References, p 427.

SPEYER, W Erfahrungen bei der Schadlingsbekampfung im Altländer Obstbau. *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst,* Berlin 1937, 17 Jahrg., Nr 11, S. 87-88.

SQUIRE, F. A. A theory of diapause in *Platyedra gossypiella* Saund *Tropical Agriculture,* Trinidad, B. W. I, 1937, Vol XIV, No. 10, pp 299-301, figs 1-2. References, p. 301.

STANLEY, W M., [and] WYCKOFF, Ralph W G The isolation of tobacco ring spot and other virus proteins by ultracentrifugation *Science,* Lancaster, Pa., 1937, New Series, Vol. 85, No 2198, pp. 181-183

STRAIB, W Flughafer als Zwischentrager des Kronenrostes *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst,* Berlin 1937, 17 Jahrg, Nr. 11, S 89
Puccinia coronata .

STROBEL, A, und Mitarbeitern 35 Jahre Bayerische Landesanstalt fur Pflanzenbau und Pflanzenschutz Munchen *Praktische Blatter fur Pflanzenbau und Pflanzenschut* , Freising 1937, XV Jahrg, Heft 5/6, S 113-198, Abb 1 14. Literatur-Ubersicht, S 187-197

TAKAHASHI, Ryoichi Some observations on the insect pests of agricultural plants in the mountainous regions in Formosa 2 *Journal of the Society of Tropical Agriculture,* Taiwan (Formosa), Japan, 1937, Vol IX, No 1 pp 69-78
In Japanese, with the title also in English

THORNBERRY, H H, and ANDERSON, H W Some bacterial diseases of plants in Illinois *Phytopathology,* Lancaster, Pa, 1937 Vol 27, No 9, pp 940-949.
Phytomonas polygoni n sp. on *Polygonum convolvulus* *Phyt plantaginis* n sp. on *Plantago lanceolata, Phyt columnae* n sp on *Corylus colurna, Phyt cichorii* on *Cichorium intybus, Phyt helianthi* var *tuberosi* sic n var on *Helianthus tuberosus* – Description of the new species in English].

TOCCALITI, A. È tossica per l'olivo la soluzione antidacica? *Il Giornale d'Italia Agricolo,* Roma, 1937, anno XX, n 40, p 5
Is the mixture of molasses and sodium arsenite employed in the control of *Dacus oleae* toxic for the olive tree?]

TRINCHIERI, G[iulio]. Un nemico alle porte la dorifora *Sapere,* Roma 1937. anno III, vol VI, n. 69, pp 302-305, 13 figg
Leptinotarsa decemlineata in the different countries

TULLIS, E C. Cercospora oryzae on rice in the United States *Phytopathology,* Lancaster, Pa, 1937, Vol. 27, No. 10, pp. 1005-1008, fig 1 Literature cited, p. 1008

TVERSKOY, D., The effect of short and ultra-short radio waves on fungi and bacteria pathogenous to plants. *Plant Protection*, Leningrad, 1937, No. 13, pp. 3-28. [Literature], pp. 25-26.
[In Russian, with title and summary also in English. — *Bacillus carotovorus*, *Fusarium solani*, *Botrytis cinerea*, *Sclerotinia libertiana*, *Phytophthora infestans*].

VAN GINNEKEN, P. J. H., en DE HAAN, K. Enquête omtrent het voorkomen van de bietenvlieg en de schildpadtor in de jaren 1935, '36 en '37. *Mededeelingen van het Instituut voor Suikerbietenteelt*, Bergen op Zoom 1937, aflev. 6, blz. 103-118.
[In Dutch, with title and summary also in French: — 'Enquête sur la mouche de la betterave et la casside aux années 1935, '36 et '37'. — *Pegomyia hyoscyami* and *Cassida nobilis*].

VAYSSIÈRE, P[aul]. La conception scientifique actuelle de la lutte contre les sauterelles. *Revue Scientifique*, Paris, 1937, 75e année, n° 10, p. 364-369, fig. 1-3

VERDOORN, Fr., (Edited by). Chronica Botanica. Leiden, Holland, 1937, Vol. III, 431 pp., 69 portraits, 49 figs.
[See also this *Bulletin*, 1937, No. 4, p. 83].

VIDAL, J.-L. A la recherche de nouvelles bouillies cupriques plus efficaces ou plus économiques. *Revue de Viticulture*, Paris, 1937, 44e année, tome LXXXVII, n° 2244, p. 14-16.

VINSON, Jean. Les larves des Coléoptères Lamellicornes de l'île Maurice *La Revue Agricole de l'Ile Maurice*, Maurice, 1937, n° 92, p 68-70, 1 pl. Bibliographie, p. 70
[*Adoretus versutus*, *Aphodius lividus*, *Serica* sp, *Cetonia* sp, *Rhizotrogus pallens*, *Hybosorus illigeri*, *Phytalus smithi*, *Oryctes tarandus*.

VIVAS, Oscar. El piretro El cultivo auxiliar de la chacra y quinta cordobesa *Boletin de Agricultura y Ganaderia*, Cordoba, 1937, año XIII, mayo junio de 1937, págs. 19 a 24, 1 fig
[*Chrysanthemum cinerariaefolium*].

WARDLAW, C W Banana diseases. XI. – Notes on some plantation diseases in Guadeloupe *Tropical Agriculture*, Trinidad, B W I, 1937, Vol XIV, No 10, pp 279-280. References, p. 280.
[*Fusarium oxysporum* var *cubense*, *Bacterium solanacearum*, virus and heart-rot disease, *Cercospora musae*, *Cordana musae*, *Chloridium musae*, *Helminthosporium torolosum*, *Frankliniella insularis*, *Cosmopolites sordidus*

WARTENBERG, Hans. Wunschelrute, Erdstrahlen und Pflanzenkrankheiten *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1937, 17 Jarhg, Nr 11, S 85 87

NOTES

'Chronica Botanica'. — From February, 1938 *Chronica Botanica* will be issued bymonthly and no longer as a year-book, edited in 1935, 1936 and 1937 by Dr. Fr. Verdoorn [see this *Bulletin*, 1935, No. 7, pp. 169-170; 1937, No. 4, p. 83, and No. 12, p 292] The new periodical will continue to give all the essential information which was given in the old year-book and will include some new sections as well. The world list of plant science institutions and societies will appear as an annual supplement.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

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